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DIVISION OF WATER QUALITY

Attachment E – Notice of Intent

WATER QUALITY ORDER NO. 2013-0002-DWQ
GENERAL PERMIT NO. CAG990005

STATEWIDE GENERAL NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT FOR RESIDUAL AQUATIC PESTICIDE DISCHARGES TO WATERS OF THE UNITED STATES FROM ALGAE AND AQUATIC WEED CONTROL APPLICATIONS

I. NOTICE OF INTENT STATUS (see Instructions)

Mark only one item A. New Applicator B. X Change of Information: WDID# 5B50AP00004
C. ☐ Change of ownership or responsibility: WDID#

II. DISCHARGER INFORMATION

A. Name Turlock Irrigation District			
B. Mailing Address PO Box 949			
C. City Turlock	D. County Stanislaus/Merced	E. State CA	F. Zip 95381-0949
G. Contact Person Michael Niemi	H. E-mail address mjniemi@tid.org	I. Title Water Resources Analyst	J. Phone 209-883-8346

III. BILLING ADDRESS (Enter Information *only* if different from Section II above)

A. Name			
B. Mailing Address			
C. City	D. County	E. State	F. Zip
G. E-mail address	H. Title	I. Phone	

IV. RECEIVING WATER INFORMATION

A. Algaecide and aquatic herbicides are used to treat (check all that apply):

1. ☒ Canals, ditches, or other constructed conveyance facilities owned and controlled by Discharger.
   Name of the conveyance system: Turlock Irrigation District Canal System
2. ☐ Canals, ditches, or other constructed conveyance facilities owned and controlled by an entity other than the Discharger.
   Owner's name: _____
   Name of the conveyance system: _____
3. Directly to river, lake, creek, stream, bay, ocean, etc.
   Name of water body: _____

B. Regional Water Quality Control Board(s) where treatment areas are located (REGION 1, 2, 3, 4, 5, 6, 7, 8, or 9): Region 5
(List all regions where algaecide and aquatic herbicide application is proposed.)

V. ALGAECIDE AND AQUATIC HERBICIDE APPLICATION INFORMATION

A. Target Organisms: ____
Algae & Aquatic Weeds

B. Algaecide and Aquatic Herbicide Used: List Name and Active ingredients

- Magnacide H (acrolein)
- Cascade (dipotassium salt of endothall)
- Teton (mono(N,N-dimethylalkylamine) salt of endothall)
- Roundup Custom (glyphosate (N-(phosphonomethyl) glycine isopropylamine salt))
- Clearcast (ammonium salt of imazamox)

C. Period of Application: Start Date January 1 End Date December 31

D. Types of Adjuvants Used: A non-ionic surfactant such as Target Specialty Products *Pro-Spreader Activator*

VI. AQUATIC PESTICIDE APPLICATION PLAN

Has an Aquatic Pesticide Application Plan been prepared and is the applicator familiar with its contents?
☒ Yes ☐ No

If not, when will it be prepared? _____

VII. NOTIFICATION

Have potentially affected public and governmental agencies been notified? ☒ Yes ☐ No

VIII. FEE

Have you included payment of the filing fee (for first-time enrollees only) with this submittal?
☐ YES ☐ NO ☒ NA

IX. CERTIFICATION

"I certify under penalty of law that this document and all attachments were prepared under my direction and supervision in accordance with a system designed to ensure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine or imprisonment. Additionally, I certify that the provisions of the General Permit, including developing and implementing a monitoring program, will be complied with."

A. Printed Name: Tou Her

B. Signature: _____ **Date:** 8/12/16

C. Title: Assistant General Manager-Water Resources

XI. FOR STATE WATER BOARD STAFF USE ONLY

WDID:	**Date NOI Received:**	**Date NOI Processed:**
Case Handler's Initial:	**Fee Amount Received:** **$**	**Check #:**
☐ **Lyris List Notification of Posting of APAP**	**Date** _____	**Confirmation Sent** _____

TURLOCK IRRIGATION DISTRICT

Aquatic Pesticide Application Plan, including a Monitoring Program

Statewide General NPDES Permit for Residual Aquatic Pesticide Discharges

Prepared by

Turlock Irrigation District
333 East Canal Drive
Turlock, CA 95380

August 12, 2016

Prepared for compliance with the:

Statewide General NPDES Permit for Residual Aquatic Pesticide Discharges to Waters of the United States from Aquatic Weed Control Applications (Water Quality Order No. 2013-0002-DWQ, General Permit No. CAG 990005)

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B Turlock Irrigation District Notice of Intent
C Public Notice Requirements and Pesticide Application Logs
D Special Status Species Sensitivity Training Documentation
E Water Quality Monitoring Form

Acronyms

APAP	Aquatic Pesticide Application Plan
BMPs	Best Management Practices
CAC	County Agricultural Commissioner
cfs	cubic feet per second
COC	Chain-Of-Custody (form)
CTR	California Toxics Rule
DHS	Department of Health Services
DPR	Department of Pesticide Regulation
EPA	U.S. Environmental Protection Agency
GPS	Global Positioning Systems
ID	Irrigation District
LCS	Laboratory Control Spike
MRP	Monitoring and Reporting Program
NOI	Notice of Intent
NPDES	National Pollutant Discharge Elimination System
ppm	parts per million
QAPP	Quality Assurance Project Plan
QC	Quality Control
RPD	relative percent difference
RWQCB	Central Valley Regional Water Quality Control Board
SWRCB	State Water Resources Control Board
USGS	U.S. Geological Survey
µg/l	micrograms per liter
UPI	United Phosphorus Incorporated

This report includes the Aquatic Pesticide Application Plan (APAP), and Monitoring Plan which was prepared to comply with the State Water Resources Control Board (SWRCB) Statewide General National Pollutant Discharge Elimination System (NPDES) Permit for Residual Aquatic Pesticide Discharges to Waters of the United States from Algae and Weed Control Applications (Water Quality Order No. 2013-0002-DWQ, General Permit No. CAG 990005). Dischargers eligible for coverage under this General Permit are public entities that conduct resource or pest management control measures, including local, state, and federal agencies responsible for control of algae and aquatic weeds that adversely impact operation and use of drinking water reservoirs, water conveyance facilities, irrigation canals, and natural water bodies.

This document is an update to Turlock Irrigation District's (TID) December 11, 2013 APAP. Under the 2013 APAP TID was using, and monitoring for, acrolein and endothall based aquatic herbicides. This update serves to add the use of glyphosate and imazamox to the list of aquatic herbicides available to TID. The sections pertaining to acrolein and endothall use and testing remain unchanged from the previously approved APAP.

The Turlock Irrigation District (TID) regularly applies aquatic herbicides that are covered by the permit, as identified in the Notice of Intent (NOI) submitted to the Central Valley Regional Water Quality Control Board (RWQCB) on August 12, 2016 (See Appendix A)**.** The aquatic herbicides used by TID for weed and algae control include:

- Magnacide H (acrolein)
- Cascade (dipotassium salt of endothall)
- Teton (mono(N,N-dimethylalkylamine) salt of endothall)
- Roundup Custom (glyphosate)
- Clearcast (ammonium salt of imazamox)

This report serves as a consolidated document addressing the requirements for use of these chemicals, the monitoring and reporting processes, and other issues regarding the aquatic herbicides used by TID. In some cases, other documents pertinent to these processes are referenced, rather than specifically incorporated.

An APAP is required to be developed (pursuant to Section VIII. C of the General Permit). The applicator(s), and other personnel, are made familiar with its contents before an application of aquatic herbicides. The following table lists the required elements of the APAP, and the location of the information within this document.

TABLE P-1 – LOCATION OF REQUIRED APAP ELEMENTS WITHIN DOCUMENT

DESCRIPTION OF REQUIRED ELEMENT	SECTION
C.1. Describe the water system where the aquatic herbicides will be applied.	1.1
C.2. Describe the treatment area.	1.3
C.3. Types of weeds to be controlled and why.	1.1

DESCRIPTION OF REQUIRED ELEMENT	SECTION
C.4. - Aquatic herbicide products to be used, - Degradation byproducts, if known, -Method of application, -Surfactants and adjuvants to be used.	1.2 1.2 1.2 1.2
C.5. Discuss factors influencing the decision of using aquatic herbicides for weed control	2.3
C.6. - List the gates or control structures to control the extent of receiving waters potentially affected, - Inspection schedule of those gates or control structures to ensure they are not leaking	1.1.1.1 & 1.1.1.2 1.1.1.1
C.7. If the Discharger has been granted a short-term or seasonal exception… describe the beginning and ending dates of the exception period, and justification for the needed time... If algaecide and aquatic herbicide applications occur outside of the exception period, describe plans to ensure that receiving water criteria is not exceeded…	4.1
C.8. Description of monitoring program	3.3
C.9. Description of procedures used to prevent sample contamination from persons, equipment, and vehicles associated with algaecide and aquatic herbicide applications.	3.3.2.2
C.10. a. Measures to prevent pesticide spill and spill contamination; b. Measures to ensure only an appropriate amount of aquatic herbicide is used; c. Plan to educate staff and applicators…; d. Plan to inform and coordinate with farmers and agencies…; e. Measures to be used to prevent fish kill.	2.4(1) 2.4(2) 2.4(3) 2.4(4) 2.4(5)
C.11. a. Examination of Possible Alternatives; b. Use least intrusive method of weed control; c. Apply a decision matrix for choosing most appropriate formulation.	2.1.1 2.1.2 2.1.3

Should modifications be made to TID's aquatic herbicide program, this document will be updated, as necessary, to comply with the General Permit requirements. A description of the modifications will be included in the Annual Report to be prepared in compliance with the General Permit requirements and submitted to the State Water Board's Deputy Director of the Division of Water Quality and the Central Valley Regional Board's Executive Officer.

General Information:

TID, organized in 1887 under the provisions of the Wright Act (California Water Code §20,500 et seq.), supplies irrigation water to a 307.5 square mile service area bordered on the north by the Tuolumne River, on the south by the Merced River, and on the west by the San Joaquin River. TID's canal system begins at La Grange Dam on the Tuolumne River where water is diverted into TID's Upper Main Canal for conveyance to Turlock Lake, which acts as a canal regulating reservoir. From Turlock Lake, water is released into the Main Canal for distribution to downstream growers for irrigation purposes.

TID owns and operates approximately 221 miles of canals and laterals downstream of Turlock Lake (see Figures 1-1 through 1-2), most of which have been lined. Water that is not utilized for irrigation purposes is released from the canal into the river system through spill gates located at the end of each canal, and at several median locations throughout the system. Releases are either discharged directly to the river or into a drain that flows to the river. There are a total of 15 spill locations from the canal system, some of which are consolidated into 9 points that discharge to the river system.

Each year the start of the irrigation season is established based on weather conditions and grower needs. The typical season runs from March through October. However, irrigation water has been made available as early as January and as late as November.

In addition to irrigation flows, the canal system downstream of Turlock Lake is utilized to transport stormwater and agricultural drainage water. Stormwater is pumped from municipal sources, and pumped or gravity fed from agricultural sources, into the canal system where it is transported and discharged to the rivers. Agricultural drainage from TID owned drainage wells, as well as private and improvement district owned tile drains, also discharge into the canal system. During the irrigation season, stormwater and drainage water flows are blended with the irrigation water present and utilized as much as possible for irrigation, with the remainder being discharged to the river system.

1.1 DESCRIPTION OF FACILITIES AND NEED FOR TREATMENT

1.1.1 Canal System

Approximately 221 miles of mainly concrete-lined canals and laterals, located downstream of Turlock Lake, can be treated with aquatic herbicides and algaecides to control weeds and algae that interfere with irrigation conveyance and clog waterways and irrigation machinery (see Figures 1-1 and 1-2). Table 1-1, below, provides additional information on the approximate length, surface area, and range of flows within the treatment area. These facilities have no beneficial uses that have been specifically established within the Basin Plan.

Some of the most problematic weeds found in the canal system include American pondweed, sago pondweed, curly-leaf pondweed, yellow primrose and filamentous algae. These weeds can inhibit the flow of water in the canal system and reduce the ability to transport the required flows to downstream irrigators. Aquatic weed growth can result in canal overtoppings that could potentially damage canal facilities, adjacent homes, farmland and businesses, and flood roadways creating traffic safety concerns. In addition, in an effort to conserve water and maximize the irrigation efficiency, many landowners currently use sprinkler, drip, or micro irrigation systems. These systems require irrigation water to be clean and free of vegetative debris that will clog the equipment.

TABLE 1-1 - CANAL FACILITIES TREATED WITH AQUATIC HERBICIDES

TREATED WATER BODIES	ESTIMATED TOTAL LENGTH TREATED	ESTIMATED TOTAL SURFACE AREA TREATED	ESTIMATED TYPICAL RANGE OF FLOW RATES	DESIGNATED BENEFICIAL USES
Unlined canals	29 miles	107 acres	300-600 cfs	None
Lined canals	192 miles	500 acres	15-1800 cfs	None

The Central Valley is a Mediterranean climate zone with hot, dry summers, and mild, rainy winters. Annual precipitation is about 12 inches, with most precipitation occurring between November and March. The summer mean temperature is about 91°F, and winter mean temperature is about 40°F. Consequently, the irrigation season is spring through fall, with peak flows in summer.

1.1.1.1 Gates and Control Structures

TID has 15 gates, called spills, where water can be released from the canal system into downstream water bodies (rivers or drains). There are eleven additional spills where upper canals spill into lower canals. At regular intervals along each canal are control structures called holding drops that hold back the water and maintain a constant elevation to allow for irrigation from the canal. There are a total of 3,696 drops in the TID canal system. Figure 1-2 shows both the spills and holding drops in the canal system.

When TID applies aquatic herbicide to a canal, the treated water can be held at any one of the drops or spills, however when possible treated water is held at a drop upstream of a spill, rather than the spill itself, to provide additional assurance of preventing the release of treated water to a downstream water body. Due to the number of possible locations where the treated water can be

held, it is not realistic to provide a list of all of the drops and spills that may be used to control the extent of the aquatic herbicide applications. However, for each application TID applicators fill out a BMP Checklist and Water Distribution personnel fill out a Water Distribution Aquatic Pesticide Field Worksheet. These forms document which drop or spill was closed and the time it was closed and inspected to insure it wasn't leaking. Water Distribution staff perform regular patrols of the treated canal while treated water is present to insure water does not pass the control structure. An example of the BMP Checklist is included in Section 2.4.1 below and a Water Distribution Aquatic Pesticide Field Worksheet is included in Appendix C. The information from these forms is summarized in tables included in each Annual Report.

1.1.2 Drains and Ditches

TID owns and/or maintains approximately 73 miles of open drains and ditches within its service area. These drains and ditches serve to convey water to and from the canals, convey spill water from the canals to downstream waterbodies, and provide regional drainage. See Figure 1-5. These facilities do not always contain water and flows can range from zero to a few tens of cubic feet per second.

Some of the drains and ditches are concrete lined but most are dirt lined and provide locations for various weeds and plants to grow, which impede flow within the ditch or drain. Some of the more common plants and weeds encountered in the ditches are cattail, bulrush, yellow primrose and perennial grasses.

1.1.2.1 Gates and Control Structures

The drain and ditch facilities do not contain gates or other control structures where water can be held within the facility.

1.2 AQUATIC HERBICIDES USED

1.2.1 Magnacide H

During the irrigation season, Magnacide H is applied to the canal system below Turlock Lake (see Figures 1-1 and 1-2) to control a variety of weeds and algae that interfere with the operation of the canal system and the delivery of irrigation water. Table 1-1, above, details the length, surface area and types of canals treated. At the beginning of each year a proposed Magnacide H application schedule is developed and utilized as a guideline. However, the actual date of application may vary based on need and field conditions.

When possible, TID applies a preventative maintenance approach to Magnacide H use. Aquatic weeds are targeted at earlier stages of growth, when lower concentrations of the aquatic herbicide are required to achieve the desired effect.

Magnacide H can be applied throughout the canal system below Turlock Lake, however not all canals are treated every year. For some canals, only one injection point where Magnacide H is applied is necessary. However, depending on flows, pump water being discharged into the canal, weed growth and other factors, multiple injection points are sometimes necessary along a single canal.

Section 1.3 includes more specific information regarding the application and treatment areas within the TID's canal system.

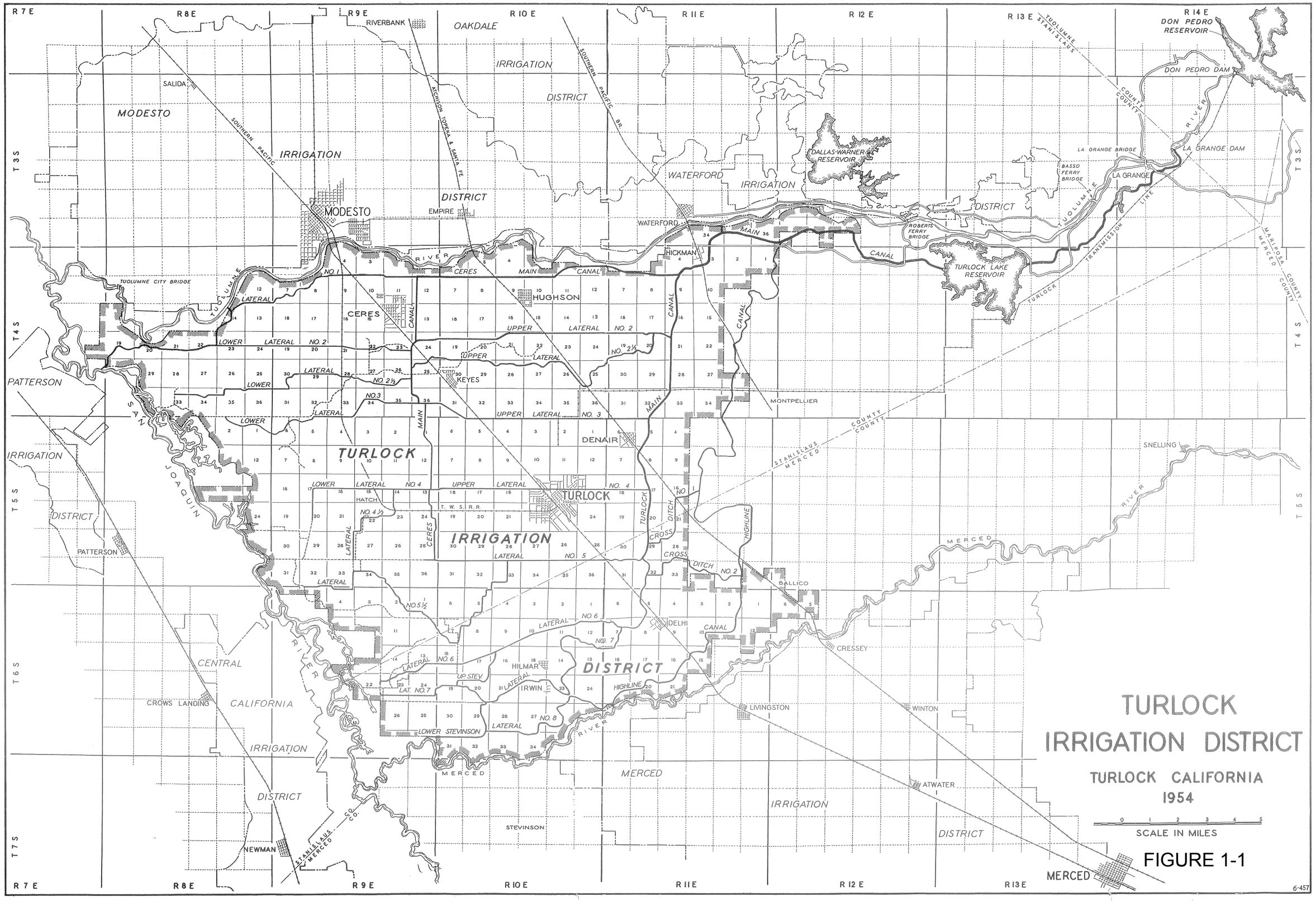

TURLOCK
IRRIGATION DISTRICT
TURLOCK CALIFORNIA
1954
SCALE IN MILES
0 1 2 3 4 5
R 7 E
R 8 E
R 9 E
R 10 E
R 11 E
R 12 E
R 13 E
R 14 E
T 3 S
T 4 S
T 5 S
T 6 S
T 7 S
DON PEDRO RESERVOIR
DON PEDRO DAM
TUOLUMNE
STANISLAUS
COUNTY
COUNTY
RIVER
LA GRANGE BRIDGE
LA GRANGE DAM
BASSO FERRY BRIDGE
LA GRANGE
DALLAS-WARNER RESERVOIR
WATERFORD IRRIGATION DISTRICT
ROBERTS FERRY BRIDGE
TURLOCK LAKE RESERVOIR
TURLOCK
TRANSMISSION LINE
MARIPOSA COUNTY
MERCED COUNTY
RIVERBANK
OAKDALE
IRRIGATION
DISTRICT
SOUTHERN PACIFIC RR
ATCHISON TOPEKA & SANTA FE
SALIDA
MODESTO
MODESTO IRRIGATION DISTRICT
EMPIRE
WATERFORD
HICKMAN
MAIN CANAL
TUOLUMNE CITY BRIDGE
TUOLUMNE RIVER
CERES MAIN CANAL
NO. 1 LATERAL
CERES
HUGHSON
CANAL
UPPER LATERAL NO. 2
LOWER LATERAL NO. 2
UPPER LATERAL NO. 2½
LOWER LATERAL NO. 2½
KEYES
MONTPELLIER
PATTERSON
SAN JOAQUIN
LOWER LATERAL NO. 3
UPPER LATERAL NO. 3
DENAIR
TURLOCK
IRRIGATION DISTRICT
LOWER LATERAL NO. 4
UPPER LATERAL NO. 4
HATCH
NO. 4½
T. W. S. R. R.
TURLOCK DITCH
CROSS DITCH NO. 1
CROSS DITCH NO. 2
HIGHLINE
LATERAL NO. 5
NO. 5½
LATERAL NO. 6
NO. 7
DELHI
BALLICO
CRESSEY
SNELLING
MERCED RIVER
CENTRAL CALIFORNIA IRRIGATION DISTRICT
CROWS LANDING
HILMAR
IRWIN
UP. STEV.
LAT. NO. 7
LATERAL NO. 8
LOWER STEVINSON
LIVINGSTON
WINTON
ATWATER
MERCED
STEVINSON
NEWMAN
STANISLAUS CO.
MERCED CO.
6-457

FIGURE 1-1

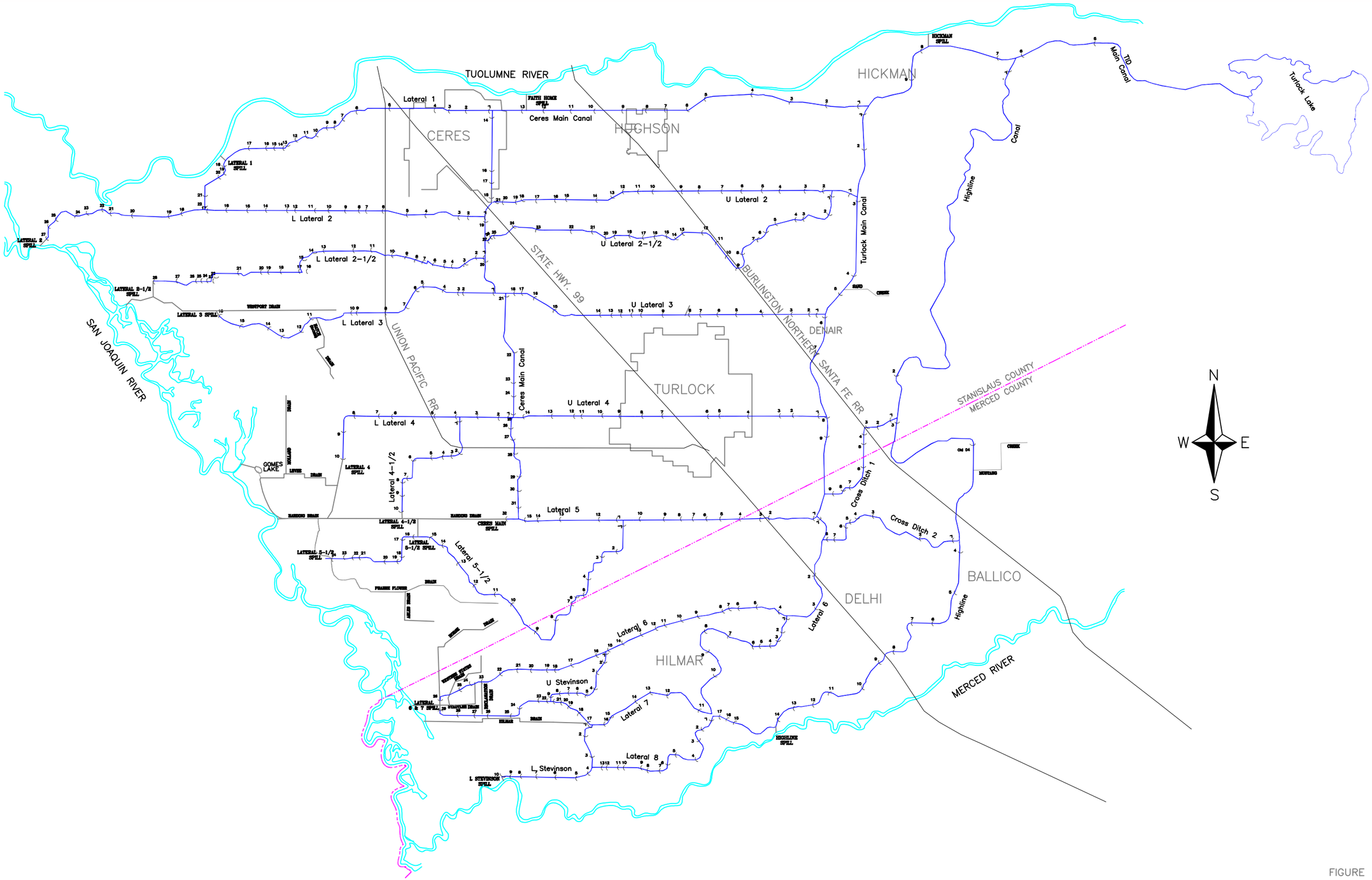


FIGURE 1–2

LOTTED: April 18, 2005

Turlock Irrigation District
333 East Canal Drive
Turlock, California 95382

REV	DATE	DESCRIPTION	DR	CHK	APP
1	04/18/05	Revison of District Canal System Map	KGL		

TURLOCK IRRIGATION DISTRICT TID

Map of the Turlock Irrigation District Canal System

TID Individual Montioring Plan
Statewide General NPDES Permit for Discharges of Aquatic Pesticides

DATE:	04/18/05	FILE:	
DRAWN:	KGL	DESIGN:	
CHECKED:		APPROVED:	
DWG #:			

SHEET: 1 OF: 1

Magnacide H is applied according to the label instructions and other guidelines prepared by Baker-Petrolite. Applicators have the necessary licenses for the application of Magnacide H, as specified by the CAC and DPR. Magnacide H is transported in a portable skid tank, mounted on a flatbed truck. When the applicator arrives at the application site, he prepares the equipment to apply Magnacide H. Prior to the application, the weed growth in the canal is categorized to determine the amount of Magnacide H to be applied per cubic foot per second (cfs) of flow present in the canal at the time of application. The amount of Magnacide H (shown in Table 1-2) typically ranges from 0.17 gallons per cfs to 1.5 gallons per cfs depending on weed conditions in the canal.

TABLE 1-2 - WEED GROWTH CONDITION CHART FOR WATER TEMPERATURES ABOVE 60 °F

CONDITION CODE	MAGNACIDE H GALLONS PER CFS (DOSAGE)
A Little algae and pondweed - Less than 6 inches long	0.17
B Algae (non-floating) and Pondweed less than 12 inches long	0.25
C Algae (some floating) and Pondweed 12 to 24 inches long	0.50
D Algae (some floating) and Mature pondweed (over 24 inches)	1.0
E Choked Condition	1.5

The Condition Codes are used to describe the general treatment level. Each treatment requires that an application rate be determined. The rate (gallons/hour) to be applied to a canal depends on the condition dosage, water temperature factor, canal rate of flow, and contact time. Equations and/or rate tables in the label instructions are used to determine the rate at the time of treatment. The resulting concentration (in parts per million [ppm]) is a function of the dosage and application time, and is another indicator of general treatment levels. Product labeling limits the maximum concentration to 15 ppm per application event and no more than eight application events to a particular canal during one year.

Most applications, with the exception of larger canals, are completed in one to two hours. For larger canals the applications typically last longer, in some cases up to 6 hours. Once the amount of Magnacide H to be applied to the canal is determined, the applicator will consult a chart to determine the proper orifice size and nitrogen pressure to use to deliver the product to the canal over the application period. An orifice is used to control the flow of Magnacide H as it leaves the tank. The Magnacide H is forced from the container with oxygen-free nitrogen gas set at a specific pressure to deliver the chemical at a steady rate through a hose that is placed in the canal. TID applicators fill out an

Applications are typically conducted at a drop or other structure within the canal system where turbulence is available to help evenly mix the herbicide within the canal. The immediately adjacent downstream sidegates are closed to prevent the potential for the aquatic herbicide to be drawn out of the canal through a sidegate, prior to the full blending of the aquatic herbicide within the water column.

Degradation of Magnacide-H is rapid, occurring over the period of hours to several days, and forms the primary hydrolytic degradation product 3-hydroxypropanol, and several transient

metabolic products, including acrylic acid, allyl alcohol, propionic acid, propanol, and 3-hydroxypropionic acid. Terminal metabolites are oxalic acid and carbon dioxide.

Adjuvants and surfactants are not used with Magnacide-H.

1.2.2 Endothall Compounds

In addition to Magnacide H, TID uses to endothall compounds (Cascade and Teton) in the canal system below Turlock Lake to control a variety of weeds and algae that interfere with the operation of the canal system and the delivery of irrigation water. An application schedule is developed at the beginning of each irrigation season for Cascade and Teton and utilized as a guideline. However, the actual date of application may vary based on need and field conditions.

Both Cascade and Teton are contact herbicides, applied when weeds and or algae are actively growing. According to the label, applying Cascade "as early as possible after weeds appear and are actively growing is recommended for best results."

The treatment areas for endothall compounds are the same as those that have been previously developed for Magnacide H. Generally, only one injection point per treatment area is used with Cascade and Teton since applications typically range from 6 to 24 hours but can be as long as 48 hours. However on long canals, a second injection point can be added downstream to ensure proper weed control in the lower reaches of the canal. These second injections are usually done the following day, once the first plume is near the second injection point. Care is taken to insure that the second injection is either in front of or behind the first plume, not put on top of the first plume causing the overall treatment to exceed the 5ppm limit.

Endothall compounds are applied according to the label instructions and other guidelines prepared by United Phosphorus Incorporated (UPI). Applicators have the necessary licenses for the application of endothall, as specified by the CAC and DPR. Cascade and Teton are transported in a 250 gallon plastic tote, a 30 gallon plastic tote or 2.5 gallon plastic jugs depending on the needs of each application.

Applications are typically conducted at a drop or other structure within the canal system where turbulence is available to help evenly distribute the herbicide within the canal. Endothall is injected into the canal, using a peristaltic pump calibrated to deliver a precise amount of product depending on the flow of water in the canal to achieve the desired concentration. A hose leading to the peristaltic pump is connected directly to the tote or jug which is fitted with a shutoff valve. The output hose from the pump is weighted and placed in the turbulent area downstream of a drop structure to ensure proper mixing. The sidegates immediately downstream are closed to prevent the potential for the aquatic herbicide to be drawn out of the canal, through a sidegate, prior to the full blending of the aquatic herbicide within the water column.

It is important to note that Cascade is an aquatic herbicide only and Teton is labeled as an aquatic algaecide and herbicide. Teton can be used in conjunction with Cascade to control both submerged weeds and algae. Whether applied singularly or together, the endothall concentration from Cascade and Teton cannot exceed 5 ppm. Additionally, not more than 30 ppm can be applied to any treatment area per growing season.

The following information regarding application rate and time were taken directly from the manufacturers labels for Cascade and Teton.

> "*Adequate concentration (rate) and exposure time (length of treatment) will impact the efficacy of the herbicide (endothall) on the target weed species. Although endothall is a contact herbicide adequate exposure time is critical. The rates and the length of treatment are guidelines to provide control of the target species and assume that the entire canal is treated. This rate chart has been developed based on Concentration Exposure Time (CET) data for endothall. The CET concept allows rates and the length of exposure to be adjusted for different treatment scenarios."*

TABLE 1-3 – CASCADE LABEL RATES

Target Weeds	Concentration	Length of Treatment
Milfoil (Myriophyllum spp.) Parrot Feather (Myriophyllum sp.) Pondweeds (Potamogeton spp.) Coontail (Ceratophyllum spp.) Horned Pondweed (Zannichellia sp.) Hydrilla (Hydrilla verticillata) Naiad (Najas spp.) Water Stargrass (Heteranthera spp.)	0.5-1.0 ppm	48 hrs.
	1.0-2.0 ppm	24 hrs.
	2.0-3.0 ppm	12 hrs.
	3.0-4.0 ppm	8 hrs.
	4.0-5.0 ppm	6 hrs.

"To calculate the amount of Cascade required for a particular treatment use the following formula;

[Cubic Feet per Second (CFS) X Length of Treatment (hrs.) X rate (ppm)] X 0.052947 = Gallons of Cascade needed for treatment

To calculate the amount of Cascade to be applied per hour use the following formula:

Gallons of Cascade per hour = Total gallons of Cascade/Length of Treatment (hrs.)"

TABLE 1-4 – TETON LABEL RATES

Target Species	Concentration	Length of Treatment
Algae: Planktonic, Filamentous, Branched (Use in CA limited to Cladophora, Pithophora, Spirogyra, Chara)	0.05 – 1.5 ppm	6 – 120 hours
Weeds: Coontail Elodea Canadensis Hydrilla Milfoil(s) Naiad (Najas spp.) Pondweed (Potomogeton spp.) Vallisenaria Zannichellia	0.2 – 5 ppm	6 – 120 hours

"To calculate the amount of TETON required for a particular treatment use the following formula:

[Cubic Feet per Second (CFS) X Length of Treatment (hrs.) X rate (ppm)] X 0.11198 = Gallons of TETON needed for treatment

To calculate the amount of TETON to be applied per hour use the following formula:

Gallons of TETON per hour = Gallons of TETON/Length of Treatment (hrs.)"

Degradation of endothall is rapid, on the order of days, primarily by biodegradation. The primary degradation byproduct is glutamic acid with minor metabolites including aspartic acid, citric acid, alanine and possibly some phosphate esters.

Adjuvants and surfactants are not used with either Cascade or Teton.

1.2.3 Glyphosate

TID will be using glyphosate products approved for aquatic use, such as Roundup Custom, to control various aquatic and terrestrial weeds and grasses within drains and ditches as well as along the edges of its canals. Glyphosate is a foliar-applied, systemic herbicide used to control vegetation near water bodies and several immersed weeds. In plants, glyphosate inhibits an enzyme needed to synthesize an intermediate product in the biosyntheses of the aromatic amino acids, essential for protein synthesis and to produce many secondary plant products such as growth promoters, growth inhibitors, phenolics, and lignin.

Due to its nature to adhere strongly to particles, Glyphosate does not readily leach to waters, and its potential movement to groundwater is unlikely. In the soil environment, glyphosate is resistant to chemical degradation, is stable to sunlight, is relatively non-leachable, and has a low tendency to run-off (except as adsorbed to colloidal matter). It is relatively immobile in most soil environment as a result of its strong adsorption to soil particles. Glyphosate is rapidly and strongly adsorbed to sediment, which appears to be the major sink for glyphosate in aquatic systems. Degradation occurs by microbial activity in soil. The median half-life of glyphosate in soil has been widely studied with literature reporting a range between 2 and 197 days. A typical field half-life of 47 days has been suggested. In water, the median half-life of glyphosate varies from a few days to 91 days. The photolytic half-life of glyphosate in de-ionized water exposed outdoors to sunlight was approximately 5 weeks at 100 ppm and 3 weeks at 2,000 ppm. Its hydrolysis half life is greater than 35 days. Glyphosate is also stable to photodegradation under visible light but photolyzes when exposed to UV radiation. Glyphosate loss from water occurs mainly through sediment adsorption and microbial degradation. The rate of microbial degradation in water is generally slower because there are fewer microorganisms in water than in most soils. In summary, the use of glyphosate combined with a surfactant to treat target weeds would result in less than significant impacts on water quality due to the rapid degradation rate and controlled application of herbicides only on target plants during dry or low-flow channel conditions.

Because glyphosate requires actively growing plant material be present to be effective, a predetermined application schedule cannot be developed. TID plans to apply glyphosate on an as needed basis one to two times a year, roughly correlating with the spring and fall time periods.

The treatment areas for glyphosate are discussed in Section 1.3.2 below.

Glyphosate is applied according to the label instructions and applicators have the necessary licenses for the application of glyphosate, as specified by the CAC and DPR. Application rates will follow label guidelines and are expected to fall within 73 to 120 oz/acre. Glyphosate is transported in 30 gallon injection tanks on the back of each spray truck.

Applications of glyphosate will be performed by either a truck mounted boom sprayer or handgun, depending on size of the area being sprayed, density of plant growth and accessibility. Because glyphosate is a contact herbicide, the spraying will target areas with weed growth and not all areas of a ditch or canal will be sprayed. Applicators will focus on targeting the weeds and minimizing over spray into water that maybe in the ditch or canal. As much as possible applications will be made when the targeted ditch or canal does not contain water. Applications will be made from the downstream end of a ditch or canal in an upstream direction to limit concentrating glyphosate in flowing waters.

TID will be using a non-ionic surfactant, such as Target Specialty Products *Pro-Spreader Activator* during applications of glyphosate. Pro-Spreader is not a nonylphenol adjuvant.

1.2.4 Imazamox

TID will be using the imazamox product, Clearcast, approved for aquatic use, to control various aquatic and terrestrial weeds and grasses within drains and ditches. Imazamox can be applied to plant foliage through broadcast or spot spraying to control floating or emergent vegetation or applied as an aquatic herbicide for the control of submerged vegetation. In plants, imazamox inhibits an enzyme needed to synthesize three-branched chain amino acids.

The breakdown products of Imazamox are nicotinic, dicarboxylic, and tricarboxylic acids. None of these products are herbicidal or suggest concern for aquatic organisms or human health. Dissipation studies in lakes indicate that Imazamox has a half-life ranging from 4-49 days, with an average of 17 days.

Because imazamox requires actively growing plant material be present to be effective, a predetermined application schedule cannot be developed. TID plans to apply imazamox on an as needed basis one to two times a year, roughly correlating with the spring and fall time periods.

The treatment areas for imazamox are discussed in Section 1.3.2 below.

Imazamox is applied according to the label instructions and applicators have the necessary licenses for the application of imazamox, as specified by the CAC and DPR. Application rates will follow label guidelines and are expected to fall within 16 to 128 oz/acre. Imazamox is transported in 30 gallon injection tanks on the back of each spray truck.

Applications of imazamox will be performed by either a truck mounted boom sprayer or handgun, depending on size of the area being sprayed, density of plant growth and accessibility. Because imazamox is a contact herbicide, the spraying will target areas with weed growth and not all areas of a ditch will be sprayed. Applicators will focus on targeting the weeds and minimizing over spray into water that maybe in the ditch. As much as possible applications will be made when the targeted ditch does not contain water. Applications will be made from the downstream end of a ditch in an upstream direction to limit concentrating imazamox in flowing waters.

TID will be using a non-ionic surfactant, such as Target Specialty Products *Pro-Spreader Activator* during applications of imazamox. Pro-Spreader is not a nonylphenol adjuvant.

1.3 AQUATIC HERBICIDE TREATMENT AND APPLIACITON AREAS

The State Water Resources Control Board has defined the Treatment Area as the area being treated by the aquatic herbicide for algae and aquatic weed control (General Permit, Attachment A). It is the responsibility of TID to define the Treatment Area for each specific location where it plans to use aquatic herbicides.

The area within the canal, drain or ditch system where the aquatic herbicide is effectively controlling weeds for any treatment event is considered the Treatment Area. This area consists of the area downstream of the furthest upstream application area for a given treatment event to the furthest point where the treated water is able to flow to a control structure or leave the system.

For the purposes of this permit, a "treatment event" starts upon initiation of the application of aquatic herbicide in a targeted canal, drain or ditch, or portion thereof, and proceeds until the concentration of the aquatic herbicide is below that which can kill the target weed in the facility. The "application area" is the specific location within a canal, drain or ditch where the aquatic herbicide is being applied. Depending on need, there may be multiple points (application areas) where aquatic herbicides are injected into the canal system within a treatment area, during a single treatment event.

1.3.1 Aquatic Injection

TID applies aquatic herbicides to two types of canals. The first type is main canal, where water is treated in a larger supply or main canal. Flows from this canal then move downstream through a variety of laterals, to control structures within the canal system. For this type of canal, the Treatment Area is defined to be that area between the furthest upstream application area and the furthest downstream control structures. The downstream location may vary from application to application, depending upon how the canal system is being operated and where the last irrigation head or heads are being delivered.

The second type of canal is a lateral canal. For this type of canal, the Treatment Area is defined to be that area between the furthest upstream application point and the last control structure (gate structure) in the canal. The furthest downstream location may vary from application to application, depending upon how the canal is being operated and where the last irrigation head is being delivered.

Figures 1-3A, 1-3B and 1-4 provide an illustration of the approximate locations of the various treatment areas within the canal system. Actual injection points and resultant treatment and application areas for a given treatment event will vary depending upon irrigation deliveries scheduled, treatment needs and other considerations. For each treatment event, the injection points, application area and treatment area will be identified and documented as a part of the application process.

TID has identified 24 potential treatment areas within the TID canal system. However not all of the treatment areas will be treated with aquatic herbicides during any given irrigation season. For instance, in some years aquatic herbicide applications may occur in only one or two

treatment areas, while in other years applications may occur in many depending on weed growth and other operational considerations.

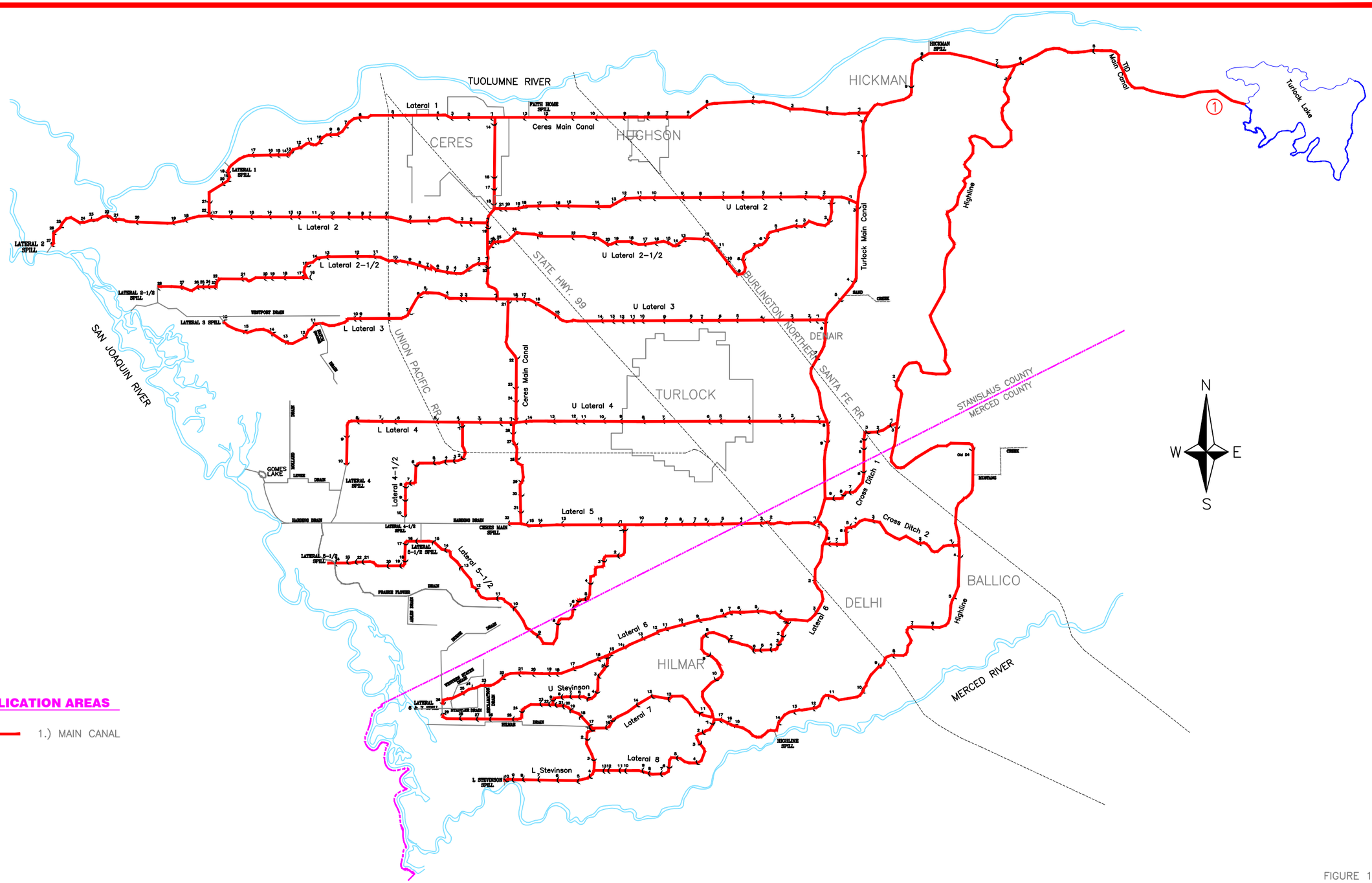
1.3.2 Surface Spraying

Since glyphosate and imazamox are only effective when applied to the leaf or freshly cut stalk surfaces of target plants, the District will only make applications of those products directly to live vegetation. Only incidental contact of aquatic herbicide with the water body being treated may occur during applications. In other words, the District does not attempt to treat nuisance vegetation by applying these aquatic herbicides directly to water bodies. For the purpose of the surface spraying program the treatment area is the same as the application area.

Glyphosate treatment areas will consist of the drains and ditches mentioned in Section 1.1.2 above, where the sides and bottom of the drain maybe sprayed if weeds are present. Additionally, the canal treatment areas discussed in Section 1.1.1 maybe sprayed with glyphosate to control weeds that grow between the shoulder of the road surface down to the high water line.

Imazamox treatment areas will consist of the drains and ditches mentioned in Section 1.1.2 above, where the sides and bottom of the drain maybe sprayed if weeds are present.

Figure 1-5 provides an illustration of the approximate locations of the four drain treatment areas within the TID system.



APPLICATION AREAS

1.) MAIN CANAL

FIGURE 1-3A

Turlock Irrigation District
333 East Canal Drive
Turlock, California 95382

REV	DATE	DESCRIPTION	DR	CHK	APP
1	03/29/05	Revision of Application Areas	JAM	DCL	DCL

TURLOCK IRRIGATION DISTRICT

Application Areas

Turlock Irrigation District
Canal System
Main Canals

DATE:	03/24/05	FILE:	
DRAWN:	JAM	DESIGN:	
CHECKED:	DCL	APPROVED:	DCL
DWG #:			
SHEET:	1 OF: 1		

PLOTTED: March 24, 2005

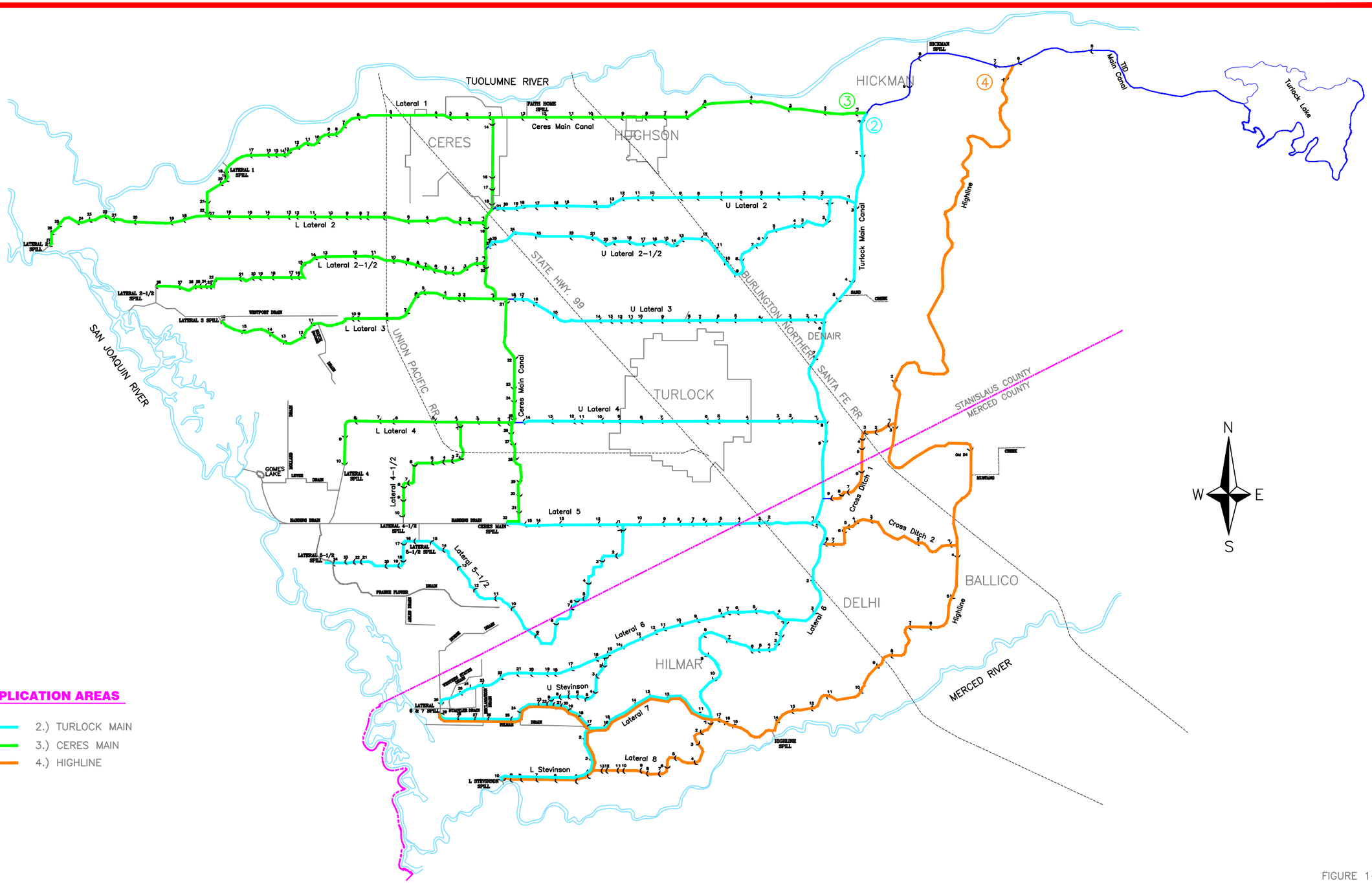


FIGURE 1–3B

Turlock Irrigation District
333 East Canal Drive
Turlock, California 95382

REV	DATE	DESCRIPTION	DR	CHK	APP
1	03/29/05	Revision of Application Areas	JAM	DCL	DCL

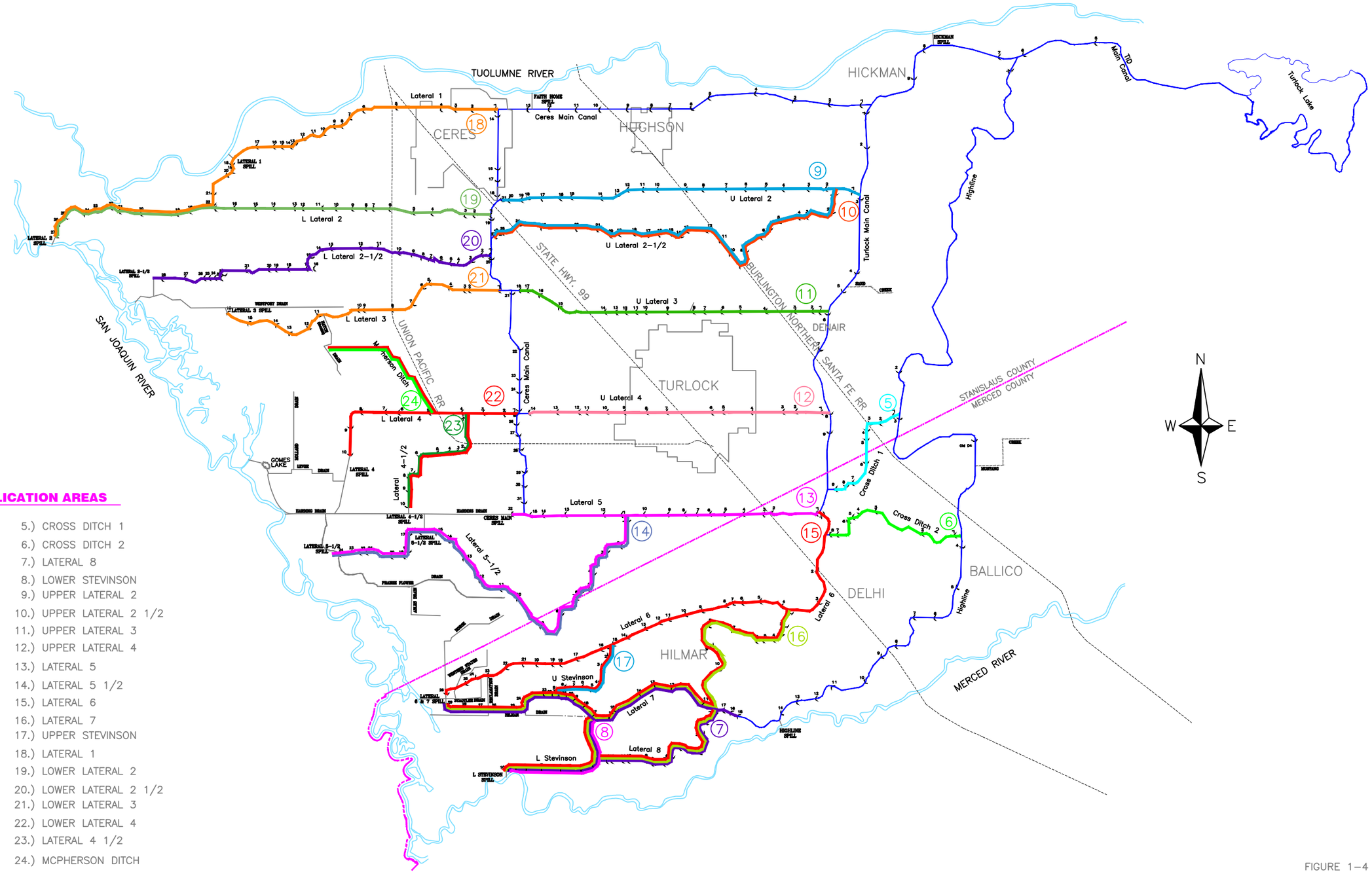
TURLOCK IRRIGATION DISTRICT

Application Areas

Turlock Irrigation District
Canal System
Main Canals

DATE:	03/24/05	FILE:	
DRAWN:	JAM	DESIGN:	
CHECKED:	DCL	APPROVED:	DCL
DWG #:			
SHEET:	1 OF: 1		

PLOTTED: 03/24/05



APPLICATION AREAS

- 5.) CROSS DITCH 1
- 6.) CROSS DITCH 2
- 7.) LATERAL 8
- 8.) LOWER STEVINSON
- 9.) UPPER LATERAL 2
- 10.) UPPER LATERAL 2 1/2
- 11.) UPPER LATERAL 3
- 12.) UPPER LATERAL 4
- 13.) LATERAL 5
- 14.) LATERAL 5 1/2
- 15.) LATERAL 6
- 16.) LATERAL 7
- 17.) UPPER STEVINSON
- 18.) LATERAL 1
- 19.) LOWER LATERAL 2
- 20.) LOWER LATERAL 2 1/2
- 21.) LOWER LATERAL 3
- 22.) LOWER LATERAL 4
- 23.) LATERAL 4 1/2
- 24.) MCPHERSON DITCH

FIGURE 1–4

Turlock Irrigation District
333 East Canal Drive
Turlock, California 95382

REV	DATE	DESCRIPTION	DR	CHK	APP
1	3/29/05	Revision of Application Areas	JAM	DCL	DCL

TURLOCK IRRIGATION DISTRICT

Application Areas

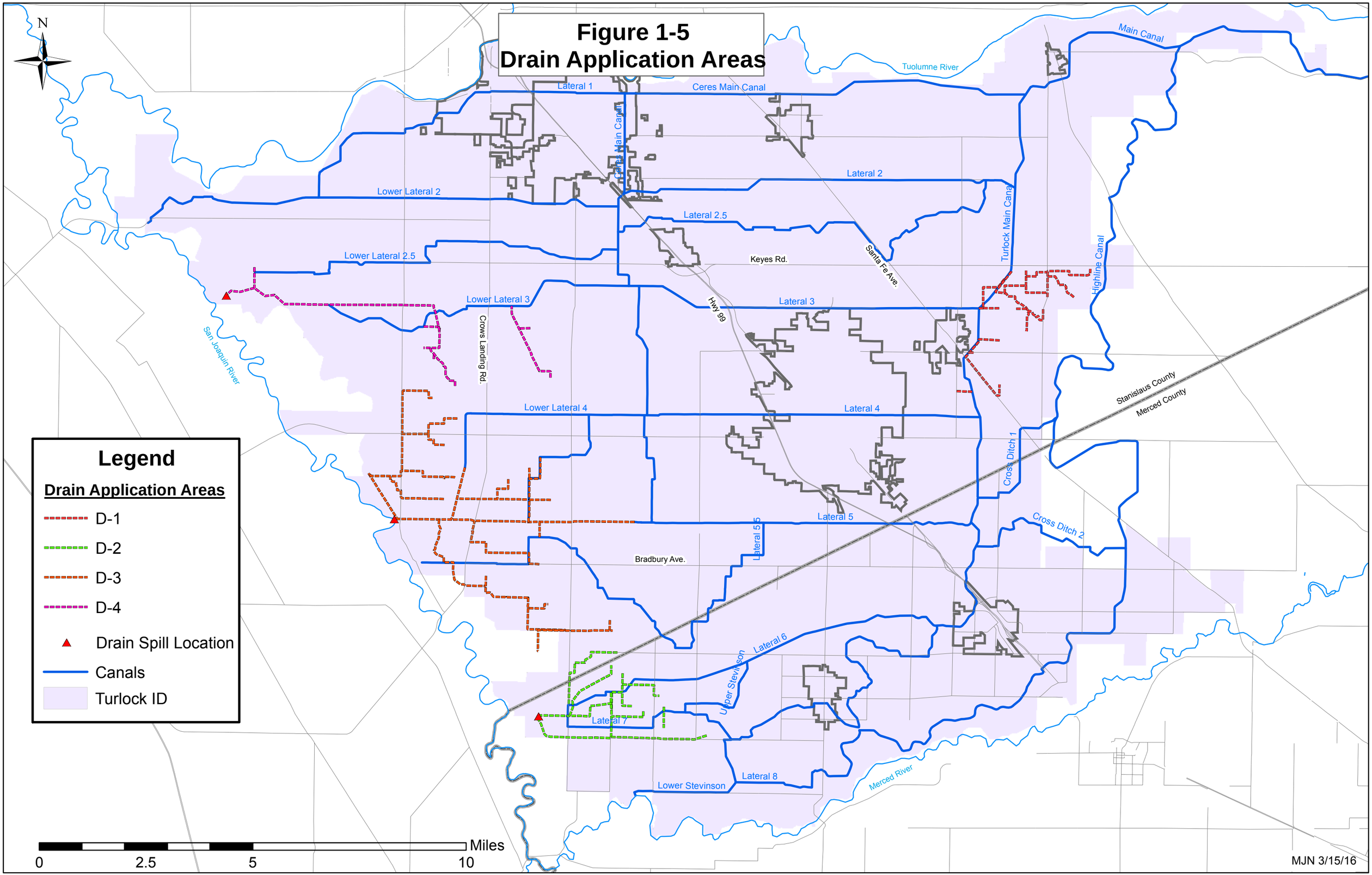
Turlock Irrigation District
Canal System
Laterals

DATE:	03/24/05	FILE:	
DRAWN:	JAM	DESIGN:	
CHECKED:	DCL	APPROVED:	DCL
DWG #:			

SHEET: 1 OF: 1

PLOTTED: March 24, 2005

Figure 1-5
Drain Application Areas



2.1 EVALUATION OF ALTERNATIVES

TID has experimented with various methods of weed control over the last 100 years. The following discussion provides an overview of the alternatives evaluated and other factors considered when developing TID's Aquatic Pesticide Application Program. Many of these alternatives are utilized as a portion of TID's control options.

2.1.1 Alternatives for Addressing Aquatic Weeds within the Canal System

No Action. Not controlling the aquatic weeds and algae in TID canals and ditches is not a viable alternative for several reasons. Many of TID facilities are low gradient canals and ditches and weed growth can severally obstruct the ability to transport water through the facility. Additionally, if weeds were allowed to grow uncontrolled the canals could overflow and potentially damage canal facilities, adjacent homes, farmland and businesses, and flood roadways creating traffic safety concerns. A third reason no action is not viable is that many growers have installed micro and drip irrigation systems which require clean, weed and algae free water or they become plugged and non-operational.

Prevention. TID has experimented with several weed growth preventative techniques.

- Dyes. Several other alternative control methods have been considered. For example, dyes that block ultraviolet light are sometimes used to control growth of aquatic weeds. However, it is usually not practical to use these materials in irrigation facilities because of the high flow rates and large volumes of water required for water distribution. These dyes must remain in the water for long periods of time to be effective.
- Sediment Removal. For example, pondweed tends to grow in areas where sand and sediment accumulates within the canal system. TID installed sand traps in key locations to enable maintenance crews to clean out the sand and sediment that accumulates in these areas in an effort to reduce the growth of pondweed. This practice, while still being pursued, has proven to be more difficult than anticipated. Sand and sediment enters the canal from a variety of sources, providing a continuous build-up. Efforts to remove sediment during the irrigation season through using gates in drops to flush sediment from behind drops are being evaluated for effectiveness. In addition, in recent years, increased efforts have been placed on cleaning the canal system during the off-season to remove sediment before the next irrigation season.
- More Thorough Cleaning. During the 2002-2003 non-irrigation season, TID maintenance crews selected and cleaned a section of lined canal with a history of heavy pondweed growth. A vacuum truck was used to extract the sediment that had accumulated on the bottom of the canal, which provides habitat for the pondweed rhizomes. The cleaning removed a majority of the rhizomes and the result was far less weed growth during the 2003 irrigation season. The cleaning procedure was extremely labor intensive and expensive to perform, which would preclude a large-scale sediment removal throughout the canal system. However, in areas where there are special circumstances, non-irrigation season sediment removal may be used in conjunction with other means of pondweed control.
- Alternative Canal Linings. Alternatives to concrete canal linings have been utilized along the canals. There was less weed growth in these areas, and less sediment

deposited. However, there was more sediment downstream of these locations, likely due to the accumulation of sediment coming from the newly lined locations. Although there was less sediment with the alternative lining, the product resulted in significant maintenance problems requiring its removal before the 2005 irrigation season. No further experiments of this sort are planned at this time.

Mechanical or Physical Methods. TID has a long history of utilizing various mechanical and physical methods of weed control and still utilize some today.

- Raking and chaining, has been used in the past and is still used as necessary. Mechanical vegetation removal often results in generation of high levels of turbidity in the water. When highly turbid water is released to natural water bodies, fish and other aquatic organisms may be adversely affected. In addition, mechanical vegetation removal can result in sedimentation and clogging in irrigation equipment, as well as damage to the structural integrity of irrigation facilities which can result in costly maintenance requirements. Cleaning schedules have been established to minimize impacts on irrigation by planning deliveries to facilities sensitive to clogging around scheduled cleaning activities. In addition, flows within the canals are monitored closely to minimize spills.
- Manual Removal. Removal of aquatic weeds attached to the canal bank or floating on the canal surface is implemented, when practical, during the irrigation season. Examples of these types of weeds are water primrose and cattails. Removal is accomplished by manually cutting the weed, pulling it out of the water, and transporting the weed to a place where it can be properly disposed of. This method is best when implemented when weeds are a smaller size, and located in relatively low concentrations. Manual removal is slow, expensive and often creates a larger issue by breaking the plants into smaller pieces that plug irrigation equipment and reseed the system with new plant material.
- Alternative Machinery for Mechanical Removal. In 2003, TID purchased equipment from the Netherlands designed to mow aquatic weeds in the canal. The unit attaches to an excavator and has a cutting bar that chops the weeds. The mowing unit was not used a great deal during the 2003 irrigation season mainly due to mechanical problems with the equipment hydraulics. However, when it was operated, we found that it was not as effective as was hoped. It appears as though it was designed to cut larger plants, and does not work well on the moss that grows in our canals.

Cultural Methods. Manipulation of water level may also be an effective method of controlling aquatic vegetation. However, in order for this method to work, canals must be kept dry for a long enough period of time to completely kill the vegetation. During the irrigation season, this is usually not feasible because water must be kept flowing in the canals to meet irrigation demands. However, during the non-irrigation season, when canals are only utilized for stormwater and drainage purposes, this method is effective in controlling weed growth. In addition, there may occasionally be times during the irrigation season, especially during low flows, when irrigation requests dwindle to the point where this type of water level manipulation could potentially be utilized at the end of the canal system. TID will continue to look for situations when this alternative control measure may be feasible.

Biological Control Agents.

- The use of Grass Carp has been discussed as an option for controlling pondweed. Grass Carp can eat large amounts of aquatic weeds in canal systems given the right circumstances. Most irrigation districts that use Grass Carp have water in their canal systems year round and have long stretches of canal between control structures. TID empties the water out of the canals in October and with the exception of storm water and a small amount of drainage pumping, the canals remain empty until March. Due to the layout and operation of the TID canals, it was decided that Grass Carp are not practical weed control alternative at this time.
- TID is not aware of other commercially available, environmentally approved biological control agents but is constantly evaluating new products as they become available.

Alternative Herbicides. TID evaluates the potential of alternative herbicides to determine if a product can be used to control the specific weed types found in the canal system. A number of factors are considered in the evaluation including; whether the chemical is listed on the NPDES permit, toxicity levels to non-target organisms, crop sensitivity, application method, etc. Based on those factors, along with the recent labeling of Cascade and Teton in California, TID recently added the use of endothall and is now adding imazamox to control aquatic weeds.

2.1.2 Utilization of Least Intrusive Application Method

TID's aquatic herbicide application methods are relatively unobtrusive. The aquatic injection applications involve one to two vehicles parked on the canal roadway with one to two staff personnel. The application into the water body occurs by placing a small diameter hose (approximately 1/2 inch diameter) into the water of the canal. Only small sections of the canal system are treated at one time, ranging from approximately one mile to approximately 20 miles.

The aquatic weed spraying involves one vehicle mounted spray rig driving down a service road that parallels the ditch, drain or canal. The glyphosate or imazamox based herbicide is sprayed either through a boom mounted sprayer or a hand gun sprayer. Only small sections of ditches or canals (those that contain actively growing aquatic weeds or grasses) are sprayed.

2.1.3 Decision Matrix

The rigid nature of decision matrix in choosing the appropriate formulation of aquatic herbicide does not lend itself to the fluid nature of an integrated pest management (IPM) approach that TID utilizes. TID's IPM is based on making changes to its weed control activities based on weed species present, water temperature, seasonal variabilities in canal operations, water chemistry, length of canal to be treated and the need for short or long term weed control. To consider all these factors in a matrix would become unwieldy and restrictive.

2.2 CONTROL TOLERANCES

2.2.1 Control Tolerances for Aquatic Weeds within the Canal System

Control tolerances are defined, for the purposes of this report, as the amount of growth that can occur before action is necessary. The control tolerances may vary, depending on:

- The time of year (more growth may be allowed at the end of the season, when canal flows are lower and growth is less likely to impact the ability to supply irrigation water to growers);
- Irrigation demands along a specific reach of the canal
- Canal capacity or the ability to transport the necessary flows through the canal system
- Maturity of plant, and the effectiveness of treatment when the weed becomes more mature

As described in Section 1.2 above, TID applies a preventative maintenance approach to aquatic herbicide use. Aquatic weeds are targeted at earlier stages of growth, when lower concentrations of the aquatic herbicide are required to achieve the desired affect. As a result, applications are scheduled at a time and frequency to enable lower dosages to control aquatic growth, thereby reducing the herbicide concentrations in the water.

2.3 FACTORS INFLUENCING THE DECISION TO USE AQUATIC HERBICIDES

This section includes a discussion of the factors influencing the decision to use aquatic herbicides with regard to the tolerances identified above.

2.3.1 Decision Factors for Aquatic Herbicide Treatment in the Canal System

The weed and algae control methods used by TID for its canal facilities are selected based on many factors, including the following:

- Potential environmental impacts
- Areal extent of the weed growth
- Effectiveness in controlling the targeted pests
- Cost-effectiveness
- Practicality of implementation

Prior to treatment, an evaluation is conducted by the Pest Control/Facilities Manager, in conjunction with other Operations and Water Distribution staff, to determine the best means of addressing an existing aquatic weed infestation. In some instances, alternative means other than aquatic herbicide treatment, such as mechanical removal, is recommended. This determination is made on a case-by-case basis, given the information available at the time, and documented on the BMP Checklist (an example of which is shown in Section 2.4.1 below).

2.4 BEST MANAGEMENT PRACTICES

The General Permit requires dischargers to implement BMPs to minimize the area and duration of impacts caused by the discharge of algaecides and aquatic herbicides in the treatment area and to allow for restoration of water quality and protection of the beneficial uses of the receiving waters to pre-application quality following the completion of the application event. In addition, the General Permit requires that the dischargers must comply with all pesticide label instructions, Department of Pesticide Regulation (DPR) and Department of Health Services (DHS), and any use permits issued by the County Agricultural Commissioner (CAC).

The General Permit requires that the following five BMPs be implemented, at a minimum:

1. **Measures to prevent algaecide and aquatic herbicide spill and for spill containment during the event of a spill.**

   TID Facilities and Pest Control personnel receive regular training in the proper handling of herbicides and spill containment in the event of spills. The following is a summary of the general procedures for spill prevention and control utilized by TID staff.

Spill Prevention and Control Procedures

1. Train personnel in proper procedures for handling pesticides during receipt, storage, formulation, loading, application and disposal.

2. Advise and train pest control personnel in proper spill prevention, emergency response and containment procedures.

   1) Containers found leaking or damaged should be handled as follows:
      a. Don appropriate protective equipment.
      b. Separate clean undamaged containers from those that are leaking. Isolate, for later cleanup, any containers that have been contaminated by leaking containers.
      c. Leaking containers should be repackaged. Repackage when necessary by obtaining containers of the same type used originally to store or transport the pesticide chemicals. Broken bags can be placed in heavy-duty plastic bags and sealed with twist ties.
      d. All labeling must be duplicated on the repackaged pesticide containers.
      e. Transfer contents of each leaking container by pouring or siphoning the contents into the new container. When pouring, use a wide-mouth funnel. Use only a mechanical siphon. NEVER START SIPHON BY MOUTH. Use a forklift to lift large containers. Mechanical pumps also can be used for transferring liquids to new containers.
      f. Clean any spilled pesticides from the outside of contaminated containers by using decontamination and/or cleaning solutions (household detergent). Collect all rinsate in a drip pan and store in a marked drum for proper disposal. Clean the inside of the damaged container by triple rinsing. All collected spilled materials may be used in accordance with the label. All rinsate can be saved for future use as a diluent.

g. All contaminated areas should be thoroughly cleaned after completing the repackaging operation

2) When a pesticide spill occurs, specific procedures should be followed for providing first aid, notifying proper authorities, and cleaning up and decontaminating the spill area. Personnel working with pesticides, or in areas containing pesticide chemicals, should be adequately trained for quick evacuation and proper spill prevention and emergency procedures as follows:
   a. Determine the pesticide involved in the spill incident. Information such as the formulation, percent active ingredient, and manufacturer's name and address should be obtained from the Material Safety Data Sheet (MSDS).
   b. All persons working with pesticides should be well trained in basic first aid procedures. It must be emphasized that when managing any spill the most immediate concern is for the health and wellbeing of persons in and around the immediate spill area. First aid kits and personal protective equipment should be maintained at pest control shops and storage areas and carried on pest control vehicles.
   c. In addition to MSDSs, the telephone numbers of the local medical unit and poison control center should be posted in conspicuous locations and always carried by pest control personnel when on the job.

3) It is recognized that pesticide spill emergencies will differ, but the immediate concern should be to minimize contamination of personnel. Although the sequence may vary, the following basic procedures should be accomplished as rapidly as possible. PRIOR TO ENTERING A CONTAMINATED AREA, DON PERSONAL PROTECTIVE EQUIPMENT (PPE).
   a. Quickly assess the spill to determine if personnel are involved.
   b. Eliminate all sources of ignition (e.g., pilot lights, electric motors, gasoline engines) in order to prevent the threat of fire or explosion from inflammable vapors (if present).
   c. If personnel are involved, the rescuer should quickly don necessary protective equipment and remove the injured to a safe location upwind from the spill. If the spill occurs in an enclosed area, doors and windows should be opened to enhance ventilation of the area.
   d. Remove contaminated clothing from the victim and/or rescuer, and wash affected areas of body with soap and water. Administer first aid as required by the symptoms/signs and label, which may include flushing contaminated eyes with clean water for 15 minutes.
   e. Obtain medical assistance for injured or contaminated persons. Do not leave injured or incapacitated persons alone. Always instruct someone to stay with them until proper medical assistance is provided or a physician has been informed of the incident.

4) Secure the spill site from entry by unauthorized personnel by roping off the area and posting warning signs. The boundary should be set at a safe distance from the spill. If necessary, obtain assistance from the base/installation's police or security unit.

5) Spilled pesticides must be contained at the original site of the spill. The pesticide must be prevented from entering storm drains, wells, water systems, ditches, and navigable waterways by following these procedures:
   a. Don appropriate protective equipment from a spill kit or the pest control shop.
   b. Prevent further leakage by repositioning the pesticide container.
   c. Prevent the spill from spreading by trenching or encircling the area with a dike of sand, absorbent material, or, as a last resort, soil or rags.
   d. Cover the spill. If the spill is liquid, use an absorbent material appropriate to the type of material. If dry material, use a polyethylene or plastic tarpaulin and secure. NOTE: Use absorbent materials sparingly as they also must be disposed of as wastes.

3. Identify locations and operations where spills are likely to occur.

4. Post emergency phone numbers in conspicuous locations. Include the emergency phone numbers for:
   a. Facilities and Pest Control Manager or Transportation and Facilities Manager.
   b. Nearby offices and buildings requiring evacuation.
   c. TID HazMat and Safety Dept.
   d. Nearest emergency medical unit.

5. Prepare and maintain spill kits.

2. Measures to ensure that only an appropriate rate of application, consistent with product label requirements is applied for the targeted weeds or algae.

- TID takes a preventative maintenance approach to weed control, targeting weeds when they are small, thereby requiring lower concentrations of herbicide to be applied.
- TID also endeavors to treat the ditches and canals on a routine basis to prevent heavy weed growth that would require higher herbicide concentrations.
- TID Facilities and Pest Control staff are licensed pesticide applicators who receive regular training on correctly calculating application rates, setup and use of application equipment and record keeping.
- TID Facilities and Pest Control staff utilize the recommended label rates as displayed Tables 1.2, 1.3 and 1.4 above, for aquatic injections, and in Sections 1.2.3 and 1.2.4 for surface spraying. These tables have been developed by the manufactures after extensive testing to determine the most efficacious rates to control target aquatic weeds.
- Prior to each application, TID Facilities and Pest Control staff fill out a Pesticide Field Application Log which documents all of the calculations used to determine the herbicide concentration to be used for that application. The log sheet shows

the maximum allowable concentration for each herbicide to serve as a double check for the applicator. Examples of the Magnacide H, Cascade/Teton and Glyphosate/Imazamox Field Application Logs are attached in Appendix C.

3. **The Discharger's plan in educating its staff and algaecide and aquatic herbicide applicators on how to avoid any potential adverse effects from the algaecide and aquatic herbicide applications.**

   - Prior to the start of each aquatic herbicide application season, TID Water Distribution Operators (WDOs) receive training on the proper handling of treated water within their canals. Proper handling includes ensuring that all spill gates from the treated canals remain closed and do no leak while water treated with Magnacide H or endothall is within that reach of canal and developing and maintaining backup plans in the event of an unexpected occurrence during an application event. It is made clear to the WDOs that under no circumstance is water treated with Magnacide H or endothall to ever leave the canal and enter a downstream waterway.
   - TID personnel who apply aquatic herbicides receive annual training, prior to the start of the aquatic herbicide application season. This training includes the identification of special-status species issues within the vicinity of the TID. TID personnel are required to keep a copy of the training materials and have them available for reference prior to each application event. Personnel document location, date, and time of any identified species; aquatic herbicide applications within the proposed treatment area are postponed until potential impacts are evaluated.
   - Applicators wear appropriate personal protective equipment (PPE) for the specific herbicide being applied as stated on the herbicide label. For example while setting up and breaking down an application of Magnacide-H the applicator must wear a long-sleeved shirt and pants, shoes and socks, chemical resistant gloves made of butyl rubber and a NIOSH approved full faced respirator with an organic vapor cartridge. The requirements for Cascade and Teton are less stringent and do not require the respirator.
   - To prevent exposer to the general public, TID posts no trespassing signs along its canals. At the application locations signboards are posted advising the public that an application is in process and they need to stay out of the area. Additionally, application personnel are on site to instruct members of the public to stay away from the application.

4. **Discussion on planning and coordination with nearby farmers and agencies with water rights diversion so that beneficial uses of the water… are not impacted during the treatment period.**

   - There are no agencies with water diversions from treated TID canals.
   - Prior to each treatment the water distribution operators (WDOs) make arrangements with the downstream growers to irrigate out the treated water to appropriate sites. When Magnacide-H, Cascade/Teton and glyphosate are applied at label rates, the irrigation beneficial use of the water is not impacted. Additionally, growers are allowed to refuse irrigation water that contains aquatic

herbicide if they wish. Imazamox is not applied to waters intended to be used for irrigation.

- There are no active potable water intakes within ½ mile downstream of any of the ditches or canals that TID will be treating with glyphosate or imazamox.

5. **A description of measures that will be used for preventing fish kill when algaecides and aquatic herbicides will be used for algae and aquatic weed controls.**
    - TID canals do not provide adequate habitat for fish. They are concrete lined and are drained every year for approximately 5 months; therefore fish kills within the canal system are unlikely.
    - To prevent fish kills in downstream receiving waters, TID follows the following practices.
        - Verify that gates at all potential release points downstream of the point of application are closed and not leaking prior to treatment, and are kept closed until Magnacide H is no longer in the system.
        - When possible, empty out the last few drops in a canal, upstream of the gate at the end of the canal, to provide a type of 'storage reservoir' for unscheduled fluctuations in canal flows.
        - If water treated with Magnacide H is not irrigated out, hold water for a minimum of 6 days before releasing, per label instructions.
        - Utilize Rhodamine dye in front and behind the applied herbicide as a visible means of tracking the plume while it is in the canal to insure gates remain closed while the herbicide is present. A full discussion of the use of dye is presented in the Section 2.4.2 below.
    - Glyphosate and imazamox have relatively low toxicity to aquatic life. In addition to the low toxicity, TID's method of applying the chemical to growing plants, applying to dry ditches as much as possible and applying from a downstream to upstream direction will all help to prevent fish kills.

2.4.1 Aquatic Weed Control BMPs

In addition to the five minimum BMPs listed above that are required by the Aquatic Weed Permit, TID has developed additional BMPs over its many years of aquatic weed control to maximize the efficacy of the control efforts and minimize impacts to the environment. The process for each application is as follows:

1. Verify the need for treatment, options for treatment (including non-toxic and less toxic alternatives), and suitability of the site for treatment.
2. Determine the type and intensity of treatment needed. Includes measurement and analysis of indicators to provide information on potential efficacy and water quality impacts.
3. Evaluate other available BMPs and alternative control measures to determine if there are feasible alternatives to the selected aquatic herbicide application project that could reduce potential water quality impacts.

4. Immediately prior to treatment, examine a series of indicators and modify treatment plans accordingly. These indicators may include day length, precipitation, recreational activity, sunlight, water depth, water flows, water turbidity, and wind.
5. Assess post-treatment control efficacy and water quality impacts.
6. Verify that gates at all potential release points downstream of the point of application are closed and not leaking prior to treatment, and are kept closed until aquatic herbicides are no longer in the system.
7. When possible, empty out the last few drops in a canal, upstream of the gate at the end of the canal, to provide a type of 'storage reservoir' for unscheduled fluctuations in canal flows.
8. If water treated with Magnacide H is not irrigated out, hold water for a minimum of 6 days before releasing, per label instructions.
9. Use Rhodamine dye to indicate where the head and tail end of the aquatic herbicide plume is located within the canal to provide an accurate means of determining when the herbicide has been irrigated out of the canal.
    a. Applicators will inject Rhodamine dye into the canal a minimum of 15 minutes before and 45 minutes after the end of the aquatic herbicide application.
    b. Staff will verify that the dye plume following the aquatic herbicide has been irrigated out the last sidegate using data collected from field monitoring instruments prior to resuming normal operations.
10. For Magnacide H specifically, the Magnacide H Baker-Petrolite Field Test may be used at potential release points after the estimated time from the hold time charts has elapsed. This method would typically only be used if there were some sort of malfunction with the dye monitoring equipment.
    a. Results are generally accurate to approximately 0.1 ppm when acrolein concentrations are in the range of 0.1 to 5 ppm, but the field test does not have the ability to distinguish between active and degraded acrolein.
    b. Accuracy may be reduced in water with a high turbidity or organic matter content. The Baker-Petrolite Company recommends first filtering the sample using a disposable 0.2 micron filter, with a luer lock to facilitate attachment to the sampling syringe, and then analyzing the sample according to the test kit instructions. Filtering the sample helps to avoid interference from other organics that may cause false positive readings. If test interference is suspected, follow filtration and calibration instructions provided by the Baker-Petrolite Company.
    c. For best results, the pre-application sample should be the same type of water as the sample being analyzed. To accomplish this, pre-application samples should be taken at the same location as the post-treatment samples.
11. Schedule applications at times that avoid changes in canal flow at the treatment site. Flows are monitored occasionally during treatment with applications adjusted, as needed, should flows change.
12. Nitrogen tank pressure gauges used to apply Magnacide H are calibrated occasionally to ensure accurate measurement.

13. Complete the following checklist with each application of Magnacide H and Cascade/Teton.

BMP Checklist for Aquatic Pesticide Applications

Application/Treatment Area:	**Planned Application Date:**

Section 1	**PRELIMINARY SITE EVALUATION/ALTERNATIVE CONTROL MEASURES**
Name:	☐ Verify need for treatment -vegetative growth stage_____
	☐ Inspection completed by (name)_____
Date:	Consider/Recommend options
	☐ Mechanical
Time:	☐ Chemical ☐ Mag H ☐ Cascade ☐ Teton
	☐ No treatment
	☐ Other
	Comments:
	Prepare for treatment
	☐ Arrangement made for irrigating out or holding treated water
	☐ Pumps set to be turned off as necessary
	☐ CAC notified (Mag H only)
	☐ List control structures in the treatment area that can spill to surface waters:
Section 2	**SECONDARY SITE EVALUATION / PRE-TREATMENT MONITORING**
Name:	Verify that canal is set for treatment
	☐ Pumps are turned off as necessary
Date:	☐ Verify suitable for treatment
Time:	☐ No special status species observed
	☐ Reschedule if necessary due to site conditions
	☐ Control structures not leaking
	☐ List control structure closure times: (for multiple structures use back of sheet) Structure:_____ Closure date and time:_____
	☐ List holding drop closure time: Drop #:_____ Closure date and time:_____
Section 3	**TREATMENT MONITORING**
Name:	Measure Field Indicators
	☐ Precipitation Potential? ___Yes___No
Date:	☐ Predicted time for treated water to exit system:_____
Time:	☐ Map showing application area, treatment area, injection points and areas downstream of the treatment area where treated water can flow
	☐ Application Log completed
	☐ Verify suitable for treatment
	Comments:
Section 4	**POST-TREATMENT**
Name:	Canal Cleared by:
	Date/time _____Location_____
	Date/time _____Location_____
Name:	Baker test kit results (if necessary):
	Date/time tested_____Results_____Location_____
	Date/time tested_____Results_____Location_____
	Test interference suspected?____Yes____No If yes, list reason_____ (potential reasons could include turbidity, organic matter)
Name:	Begin Spill to Drain or River: Date_____Time _____ Spill time noted through: ☐ Telemetry ☐Visual Observation
Name: Date:	Vegetative Control Effective? Describe:
Comments:	

3.1 KEY QUESTIONS

According to the General Permit, the MRP is designed to answer the follow two key questions:

1. Does the residual algaecides and aquatic herbicides discharge cause an exceedance of receiving water limitations
2. Does the discharge of residual algaecides and aquatic herbicides, including active ingredients, inert ingredients, and degradation byproducts, in any combination cause or contribute to an exceedance of the "no toxics in toxic amounts" narrative toxicity objective?

3.2 EFFLUENT AND RECEIVING WATER LIMITATIONS

3.2.1 Effluent Limitations

Pursuant to Section V of the General Permit, the following effluent limitations apply:

1. "The discharge of residual algaecides and aquatic herbicides must meet applicable water quality standards; and
2. Dischargers shall implement Best Management Practices (BMPs) when applying aquatic algaecides and aquatic herbicides. The BMPs must be provided in the APAP which is described in Section VIII.C…"

The BMPs utilized by TID are discussed above in Section 2.4 of this document.

3.2.2 Receiving Water Limitations

Pursuant to Section VI of the General Permit, the discharge shall not result in any of the following:

1. Discharge of residual algaecides and aquatic herbicides shall not cause or contribute to an exceedance of the following limitations in the receiving waters:
   a. Acrolein limitation = 21 µg/L
   b. Endothall limitation = 100 µg/L
   c. Glyphosate limitation = 700 ug/L
   d. …shall not cause or contribute to toxicity
   e. The permit does not contain a Receiving Water Limitation for imazamox. However there is a Receiving Water Monitoring Trigger based on one-tenth of the LC50. The Trigger value is 9.4 mg/L.
   f. TID does not currently utilize any of the other chemicals listed.
2. Dissolved oxygen to be below the Regional Water Board Basin Plans' dissolved oxygen objectives for the receiving water.
   a. The Merced and Tuolumne rivers have both warm and cold water beneficial uses, therefore the D.O. objective of 7.0 mg/L will apply when sampling those receiving waters.

   b. The San Joaquin river from the Merced River to Vernalis is listed as having a warm water beneficial use, therefore the D.O. objective of 5.0 mg/L will apply when sampling that receiving water.
3. Floating material to be present in the amounts that cause nuisance or adversely affect beneficial uses.
4. Settleable substances to be present in concentrations that result in the deposition of material that causes nuisance or adversely affects beneficial uses.
5. Suspended material to be present in concentrations that cause nuisance or adversely affects beneficial uses.
6. Taste or odor producing substances to be present in concentrations that impart undesirable tastes or odors to fish flesh or other edible products or aquatic origin, or that cause nuisance, or otherwise adversely affect beneficial uses or domestic or municipal water supplies.
7. Toxic pollutants to be present in the water column, sediments, or biota in concentrations that adversely affect beneficial uses; that produce detrimental response in human, plant, animal, or aquatic life; or that bioaccumulate in aquatic resources at levels which are harmful to human health.
8. Esthetically undesirable discoloration.
9. Aquatic communities and populations, including vertebrates, invertebrates, and non-target plant species to be degraded.

3.3 MONITORING PROGRAM REQUIREMENTS

The General Permit includes a Monitoring and Reporting Program (Attachment C) that specifies the monitoring requirements under the General Permit. This section provides a summary of those requirements and how TID will comply with those requirements including a description of the sampling to be conducted, and the quality assurance and quality control measures to be implemented.

3.3.1 Sampling Analysis

All analyses shall be conducted at a laboratory certified for such analyses by the California Department of Health Services. All analyses shall be conducted in accordance with the latest edition of "Guidelines Establishing Test Procedures for Analysis of Pollutants" (Guidelines), promulgated by USEPA (Title 40 Code of Federal Regulations part 136).

The analyses required, and methods to be used are included in Table 3-1 below. When available, the USEPA Guidelines for laboratory methods must be utilized.

TABLE 3-1 – MONITORING CONSTITUENTS AND ANALYSES REQUIRED

SAMPLE TYPE	CONSTITUENT/ PARAMETER	SAMPLE METHOD	FREQUENCY	ANALYTICAL METHOD
Visual	1. Monitoring Area Description (pond, lake, open waterway, channel, etc.)	Visual Observation	All applications	N/A
	2. Appearance of waterway (sheen, color, clarity, etc.)			
	3. Weather conditions (fog, rain, wind, etc.)			
Physical	1. Temperature (F)	Grab	6[1]	EPA 170.1
	2. pH			EPA 150.1
Physical	3. Turbidity (NTU)	Grab	6[1]	N/A
	4. Electrical conductivity @ 25 C (umhos/cm)			EPA 120.1
Chemical	1. Active Ingredient –	Grab		
	a. Acrolein		6[1]	EPA 8260
	b. Endothall		6[1]	EPA 548.1
	c. Glyphosate		1[2]	EPA 547
	d. Imazamox		6[1]	NCL ME 326
	2. Dissolved Oxygen		6[1]	EPA 360.1

[1]Frequency for physical and chemical parameters will be 6 application events for each type of aquatic herbicide. These events were completed for Acrolein and Endothall in 2014. Frequency has been reduced to 1 event per year for Acrolein and Endothall.
[2] Glyphosate only requires one monitoring event per year.

3.3.2 Sample Collection, Preservation and Delivery

3.3.2.1 Pre-Monitoring Preparations

This section describes the activities to be conducted prior to water quality field monitoring and water sample collection. To save time during sampling events, it is recommended that the following pre-monitoring items be completed.

Monitoring Team Training

All staff members that participate in water quality monitoring and water sample collection will have reviewed the monitoring plan prior to conducting sampling activities. Staff will have also been trained in water quality field monitoring (including instrument calibration, data recording procedures, and interpretation of collected data) and water sample collection (including quality assurance/quality control, completing laboratory chains of custody, ordering correct laboratory analysis, and proper handling of water samples). The training includes a “dry-run” water quality monitoring and sample collection. The “dry-run” includes instrument calibration, water quality parameter measurement and recording, preparation of sample bottles, completing chains of custody, and sample collection.

3.3.2.2 Sample Collection

Procedures

Water quality sampling should begin with reviewing a map of sample locations (examples are Figures 3-1 and 3-2), checking that all pre-sampling activities have been completed, and driving or walking to the first sample location.

In order to prevent cross contamination of samples; sampling will not be performed by herbicide applicators, collected utilizing any vehicle used to transport aquatic herbicides or collected downwind of an active aquatic herbicide application.

Surface water samples will be collected as grab samples. Grab samples characterize a medium at a particular point in space and time. Grab samples are collected by sample container immersion or by using a transfer device, such as a beaker or another clean sampling bottle.

As specified in the General Permit, grab samples shall be collected at 3 feet below the surface, or mid-depth if the water body is less than 6 feet deep. However, if depth is less than 1.0 foot, the bottle will be held just beneath the surface of the water and filled.

Thorough documentation in the field is required to ensure proper labeling and tracking of samples, identify potential sources of error, and maintain accountability among field personnel.

The following procedures are used in the collection of surface water samples:

1. Use a pole sampler where access is poor. Otherwise, use a Pyrex beaker, or the laboratory-provided, un-preserved sample bottle to collect the sample directly from the canal.
2. Sampling should be performed deliberately and methodically to minimize disturbance of bottom sediments, yet as quickly as possible to ensure a representative sample.
3. Remove the cap from the sample bottle.
4. All sample bottles and caps will be triple rinsed with the surface water being sampled before filling the bottles with the sample to be analyzed. This step will only be followed if bottles are not pre-preserved.
5. Gently dip sample bottle or sampling device in the water, fill, and carefully lift from water body.
6. Tilt sampling device and gently pour sample from sampler into the bottle. Allow the sample to trickle down the side of the bottle. Avoid aerating the sample.
7. Place the cap on the container and tighten.
8. Write the date and time on the sample label and affix to the bottle or vial.
9. Rinse the container's outside surface with deionized water, place in a zip-lock bag and place in cooler on ice. Placing bottles and vials from each sample location in a different bag will avoid cross contamination if a bottle or vial breaks during shipping.

If the sample bottle or vial already contains a preservative (provided by the laboratory), collect the sample with a triple-rinsed sampling device, and then transfer the water to the preserved container. Do not overfill preserved samples, as this will dilute the preservative or cause preservative to flow out of the container.

If collecting samples for analysis of volatile organic compounds (i.e. acrolein), collect the water sample with a triple-rinsed sampling device, and slowly pour the water into the preserved 40-ml vials. Tilt the 40-ml vial while pouring water from the sampling device to the vial to allow the water to trickle in, minimizing aeration of the sample. Add enough water to create a positive meniscus on the vial. Add a small amount of water to the vial cap and quickly, but steadily, put the cap on the vial. Tap the vial to see whether any air bubbles have been trapped. If an air bubble is present, open the vial, tap it to allow the air bubble to rise to the surface, add more sample water to the vial and re-cap the sample.

Cleaning of Equipment

Clean, unpreserved sample bottles, provided by the laboratory, or pre-cleaned poly sample bottles can be attached to the end of a sample pole for sample collection. The sampling pole and bottle holder should be cleaned prior to each sample collection utilizing the following procedure recommended by the Environmental Protection Agency (EPA) for cleaning equipment that will be used to collect samples for conventional and organic parameters (US EPA 1992):

1. Brush with detergent (choose a non-phosphorus detergent if phosphorus is a constituent of interest).
2. Rinse five to seven times with tap water.
3. Rinse with distilled/deionized water.

Parameters

The following contains additional information on the sampling procedures and parameters to be analyzed. Field measurements, as listed in Table 3-1 above, will be taken utilizing well-maintained and calibrated equipment. Field measurements will be documented in the field notebook.

Visual Parameters

Visual monitoring parameters will be obtained prior to applying aquatic herbicides. The data will be documented on the BMP checklist discussed in Section 2.4 above. Visual monitoring parameters will be documented for each application.

Physical Parameters

Temperature, pH, Turbidity and Electrical Conductivity will be taken in the field utilizing properly calibrated field equipment and documented in the field log.

Chemical Parameters

Dissolved Oxygen measurements will be taken in the field utilizing properly calibrated equipment and documented in the field log.

Samples shall be collected using sampling procedures, which minimize loss of organic compounds during sample collection and analysis and maintain sample integrity.

TID has submitted a Notice of Intent to apply four different types of aquatic herbicides. Acrolein (in the form of Magnacide H), endothall (in the form of Cascade or Teton), glyphosate (in the form of Roundup Custom) and imazamox (in the form of Clearcast). Sampling will be completed for each of these types of herbicides as follows:

Acrolein: To determine the amount of Magnacide H in the water, the water quality parameter to be analyzed in the laboratory will be acrolein, the active ingredient. Acrolein is analyzed by EPA method 8260. Water should be collected using a clean, high-density polyethylene or glass bottle attached to the sampling pole, and then transferred to two 40-mL glass vials. The vials will contain preservatives; therefore, they should not be rinsed with the sample water or overfilled. Creating a positive meniscus on the vial will help to avoid air bubbles within the sample. The bottle used to collect the water should be cleaned after each sample collection and rinsed three times with the sampling water prior to collecting the next sample.

Endothall: The active ingredient in Cascade and Teton is endothall. The amount of endothall in the water will be determined by analyzing a sample by EPA method 548.1. Samples will be collected with a clean, high-density polyethylene or glass bottle attached to a sampling pole and then transferred to a 250-mL amber glass bottle or will be collected directly into the 250-mL amber glass bottle.

Glyphosate: Glyphosate analysis will be performed utilizing EPA method 547. Samples will be collected into clean, high-density polyethylene or glass bottle attached to a sampling pole and then transferred to a 500-mL or 1-liter amber glass bottle or will be collected directly into the 500-mL or 1-liter amber glass bottle.

Imazamox: Imazamox analysis will be performed by North Coast Laboratories LTD. by an in-house method utilizing a liquid chromatograph/Mass Spec-Mass Spec (LC/MS-MS). There is not an EPA method for this herbicide. Water will be collected using a clean, high-density polyethylene or glass bottle attached to the sampling pole, and then transferred to two 40-mL unpreserved glass vials. Creating a positive meniscus on the vial will help to avoid air bubbles within the sample. The bottle used to collect the water should be cleaned after each sample collection and rinsed three times with the sampling water prior to collecting the next sample.

3.3.2.3 Sample Preservation and Delivery

All samples shall be labeled with the appropriate site name or number, the sample collection time and date and placed in a cooler with ice to keep samples cool until delivered to the laboratory for analysis. A chain of custody form will be filled out and kept with the samples during transport to the lab to ensure that the samples that were collected in the field are the same samples analyzed by the lab. Samples will be delivered to the lab either the day of collection or the following day via next day freight delivery to ensure hold times are not exceeded.

3.3.3 Monitoring Frequency

The number and types of treatment areas where aquatic herbicides are applied each year, as well as the types of aquatic herbicide used may vary within any given year. As required by the permit, for each type of aquatic herbicide applied, TID will sample six of the treatment areas that receive aquatic herbicides applications during the irrigation season. If fewer than six applications are made of a particular aquatic herbicide, all of those treatment events will be sampled. Note that this sampling was completed by TID for acrolein and endothall in 2014.

As allowed by the permit, if during the first year of sampling, the results for each active ingredient is less than the receiving water limitations/triggers for all six events, TID reduced the

sampling for acrolein and endothall to one treatment event in 2015 and will continue this schedule into the future. If at any time during the following years the active ingredient exceeds the receiving water limitations/triggers, TID will return to sampling during six treatment events for that constituent.

Due to the low probability of exceedances, the General Permit only requires one monitoring event for glyphosate per year.

If TID monitors any constituent required to be monitored under this General Permit more frequently than specified, the monitoring results shall be submitted to the appropriate Regional Board.

3.3.4 Retention of Records

The discharger shall retain records of all monitoring information including all calibration and maintenance records, copies of all reports required by this General Permit, and records of all data used to complete the application for this General Permit. Records shall be maintained for a minimum of three (3) years from the data of the sampling, measurement, or report. This period may be extended during the course of any unresolved litigation regarding this discharge or when requested by the appropriate Regional Board Executive Officer.

3.3.5 Monitoring Records

Records of monitoring information shall include the following:

a. The date, exact place and time of sampling;
b. The individuals who performed the sampling or measurements;
c. The dates analyses were performed;
d. The individuals who performed the analyses;
e. The analytical techniques or methods uses; and
f. The results of each analyses.

3.3.6 Device Calibration and Maintenance

All monitoring instruments and devices that are used by the discharger to fulfill the prescribed monitoring program shall be properly maintained and calibrated as recommended by the manufacture to ensure their continued accuracy. Generally, the recommended interval for the field parameters of pH, EC, and turbidity is once a month and for dissolved oxygen it is prior to each sampling day. Any change, cleaning or modification to the field instrument will trigger a calibration. Calibration information will be documented and retained as required under the General Permit.

3.4 MONITORING SITES

3.4.1 MONITORING SITE SELECTION

As discussed above in Section 1.3, TID has identified potential treatment areas.

The actual sampling locations needed to comply with the background, event and post-event monitoring requirements contained within the General Permit will vary, depending upon the

injection points, and treatment area for a given application. These points are standardized, as much as possible to insure consistency among the results.

GPS coordinates will be obtained by TID staff for each sampling location, and provided in the annual report, along with the monitoring data obtained during the sampling event. The method for determining the appropriate sampling locations for each application at the representative site is described below.

3.4.1.1 Selection of Sampling Locations

Selecting the sample location is important for obtaining a representative water quality sample.

The location along the canal system, drain or ditch should be in a straight reach with a uniform, unidirectional flow, uniform channel bottom contour, and no eddies.

Samples should be collected upstream from bridges or other structures, to avoid contamination from the structure or from the road surface. A catwalk or footbridge is acceptable as contamination is not likely from structures with little traffic.

3.4.1.2 Sample Types

The treatment area for a typical canal runs from the upper most application area on the canal, to the last drop structure on the canal where the water is allowed to flow, and is being irrigated out. For most treatments, this point is upstream of the last drop in the canal. Figure 3-1 illustrates a typical lateral canal application, and the associated monitoring sites. Similarly, Figure 3-2 illustrates a typical Main Canal application, and the associated monitoring sites.

The treatment area for a typical drain or ditch will run from the farthest upstream location that herbicide is applied down to the very downstream end of the drain or ditch where water leaves into another waterbody. Figure 3-3 illustrates a typical drain or ditch application along with the associated monitoring sites.

The actual layout of the treatment area will vary by canal, drain or ditch, therefore the specific sampling locations will also vary. Monitoring will be conducted as described below, to comply with the permit requirements.

- Background Monitoring: Samples will be taken, as required, at the most appropriate location upstream of the furthest upstream application area during a particular application event. In most cases, this will likely be the drop upstream of the furthest upstream injection point for a particular application event. Alternatively, samples may be collected at the application area, up to 24 hours in advance of the application.
- Event Monitoring: Samples will be taken immediately downstream of the treatment area at a point in time that treated water could reach this location from the application area. As TID does not allow water treated with Magnacide H or endothall to exit the treatment area, the stretch of canal or ditch downstream of drop structure holding the treated water may be dry. If that is the case then a sample will not be collected, however photographs of the dry condition will be taken. If there is water present downstream of the treatment area, a sample will be collected. For drains or ditches, the sample will be collected in the waterbody downstream of the outlet of the drain or ditch.

- Post-Event Monitoring: Samples will be collected from within the treatment area within one week after application.

FIGURE 3-1

PLOTTED: March 31, 2005

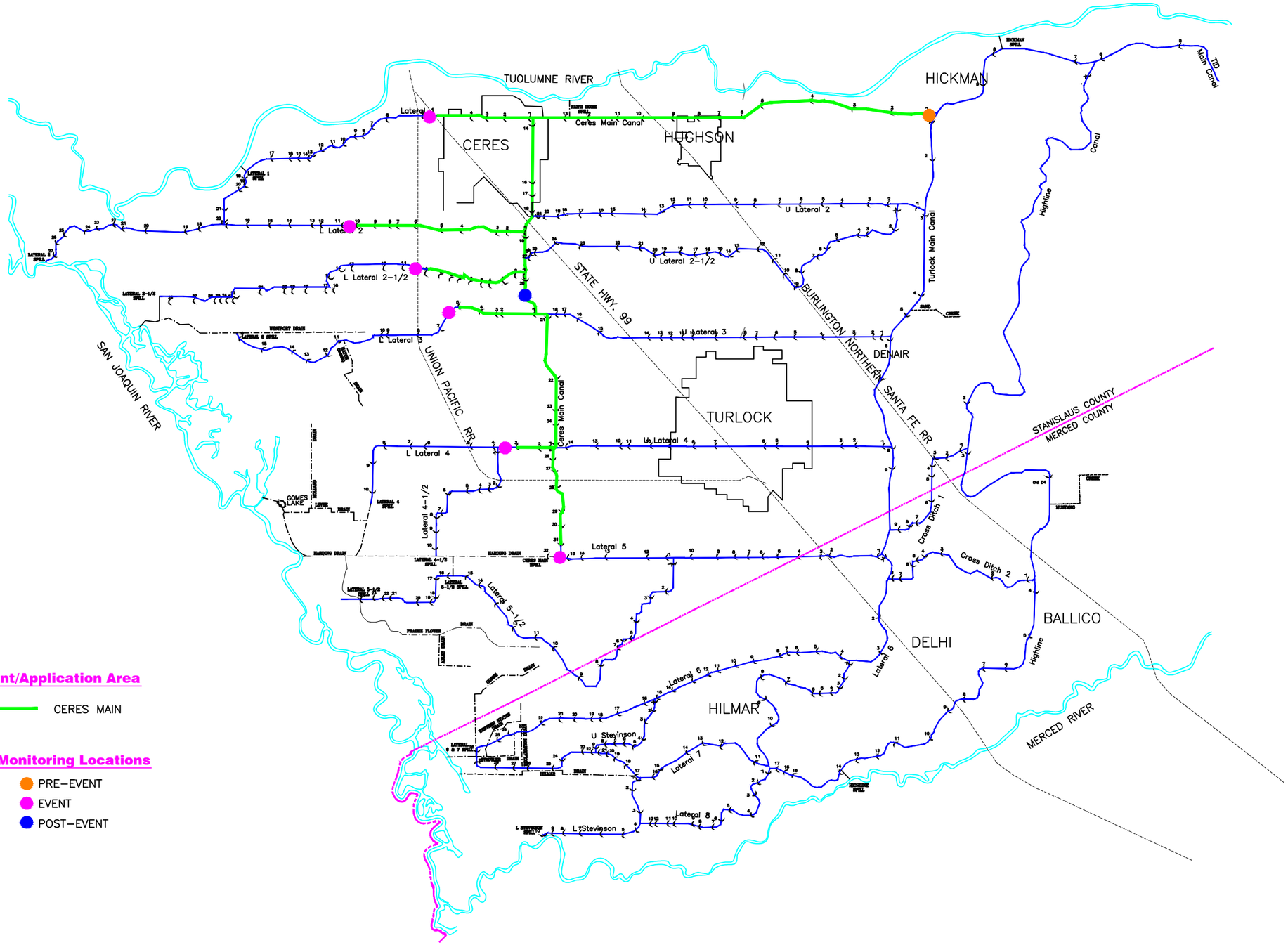
Turlock Irrigation District
333 East Canal Drive
Turlock, California 95382

REV	DATE	DESCRIPTION	DR	CHK	APP
1	03/31/05	Revison of Application Areas	JAM	DCL	DCL

Example Lateral Canal Application & Corresponding Monitoring Locations

Turlock Irrigation District
Canal System
Lower Lateral 2 1/2

DATE:	03/31/05	FILE:	
DRAWN:	JAM	DESIGN:	
CHECKED:	DCL	APPROVED:	DCL
DWG #:			
SHEET:	1 OF:	1	



Treatment/Application Area

CERES MAIN

Monitoring Locations

- PRE–EVENT
- EVENT
- POST–EVENT

FIGURE 3–2

Turlock Irrigation District
333 East Canal Drive
Turlock, California 95382

REV	DATE	DESCRIPTION	DR	CHK	APP
1	3/10/2010		KGL		

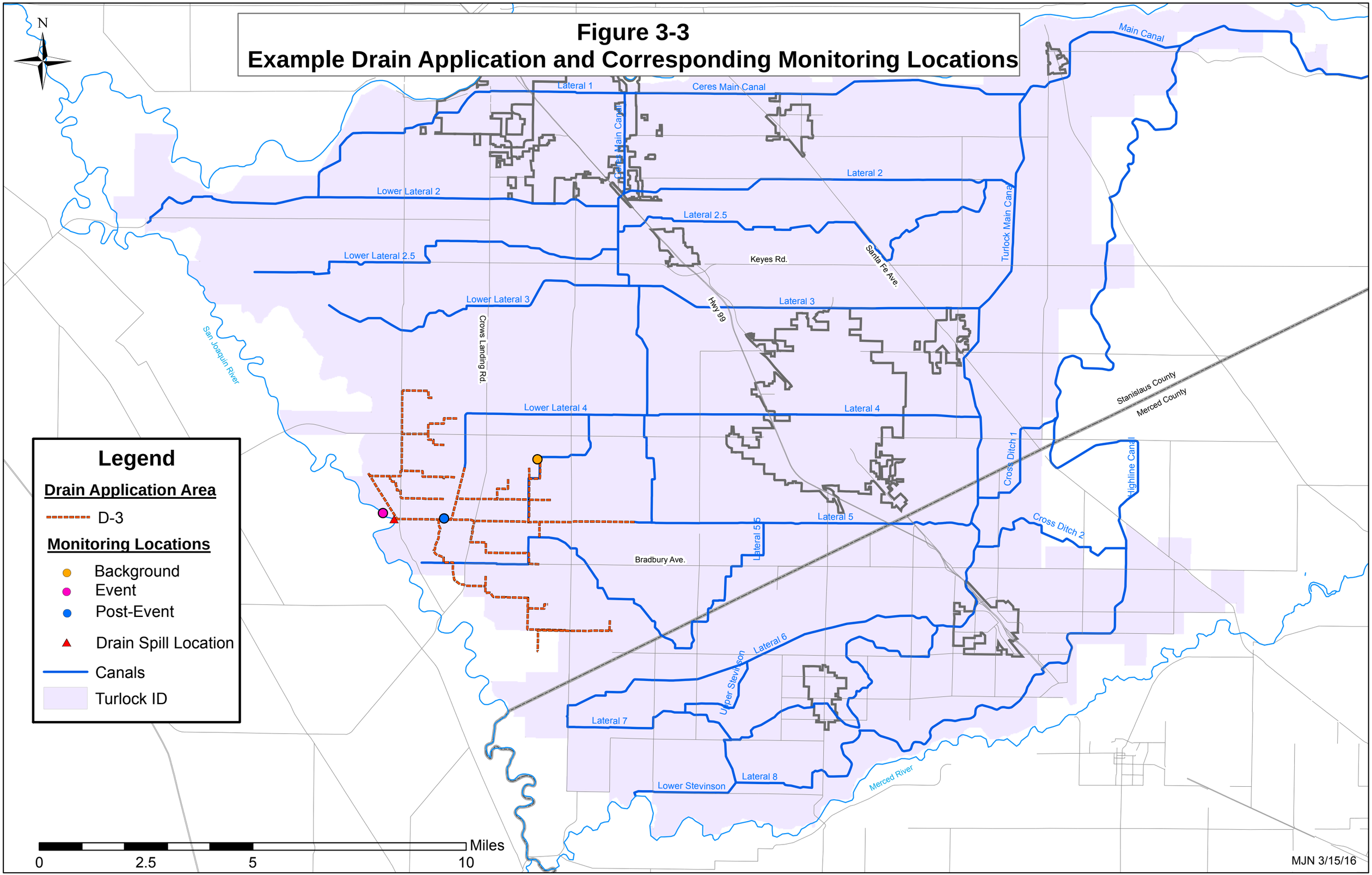
Example Main Canal Application & Corresponding Monitoring Locations

Turlock Irrigation District
Canal System
Ceres Main

DATE: 05/18/04	FILE:
DRAWN: KGL	DESIGN:
CHECKED:	APPROVED:
DWG #:	
SHEET: 1 OF: 1	

PLOTTED:

Figure 3-3
Example Drain Application and Corresponding Monitoring Locations



3.5 QUALITY ASSURANCE PLAN

Accurate measurement is often difficult due to inherent properties of environmental samples, field sampling techniques, and analysis techniques. In order to assess and maximize data quality for water quality sampling, a Quality Assurance Plan (QAP) has been developed and will be implemented as an integral part of the monitoring program. This QAP is designed to enable an evaluation and validation of the analytical data for accuracy, precision, and completeness.

Accuracy of a water quality component is determined from the deviation of a measured value from the true value. Both laboratory control spikes measured in laboratory blanks and matrix spikes measured in environmental samples are used to assess accuracy. The acceptable upper and lower recovery limits of the spikes are included in Table 3-2 and will be used to confirm accuracy of analyses.

Analytical precision is the measure of the degree of agreement among replicate analyses of a sample (i.e., the closeness of two or more measured values to one another). Duplicate sample results can be compared and a relative percent difference (RPD) calculated to determine the precision of water quality analysis. The RPDs listed in Table 3-2 represent acceptable RPDs for duplicate sample pairs to confirm precision of the analyses.

Completeness refers to the total percentage of samples that are both analyzed and validated, with respect to all the samples collected. The completeness goal for this project is 85%. This means that at least 85% of the water quality results must be acceptable without qualification in order to meet this criterion.

EPA Method 8260 can be used to quantify concentrations of a large number of volatile organic compounds, including acrolein, the active ingredient for Magnacide H. EPA Method 548.1 will be used to detect concentrations of endothall, the active ingredient in Cascade and Teton. EPA Method 547 will be used to detect concentrations of glyphosate, the active ingredient in Roundup Custom. Currently there is no EPA method of analysis of imazamox. However North Coast Laboratories, LTD. has developed an in-house method utilizing a liquid chromatograph mass spec.-mass spec. (LC/MS-MS) for detection of this compound. Analytical laboratories have been consulted to identify readily achievable target reporting limits that are included in Table 3-2.

TABLE 3-2 – ACCEPTABLE RECOVERY, RPD, REPORTING LIMITS AND HOLD TIMES

Analyte	EPA Method	Spike Recovery Limits [%]	RPD	Reporting Limits [µg/L]	Hold Time (days)
Acrolein	8260	70-130	30	20	14
Endothall	548.1	70-130	20	45	7
Glyphosate	547	70-130	30	5	6 months (frozen)
Imazamox	NCL ME 326	70-130	30	1	14

3.5.1 Field Procedures

In order to evaluate precision and the potential for field contamination Quality Analysis/Quality Control (QA/QC) samples will be collected in the field in addition to the environmental samples.

Typically, QA/QC samples are collected at analyzed from 10% of sampling events. TID will meet this minimum. A description of the QA/QC samples follows:

Equipment Blanks – Equipment blanks will be obtained to verify that the sampling equipment is not a source of contamination. Deionized water will be passed through clean sample collection equipment prior to field sampling and the poured into the laboratory sample bottles. These samples will be sent to the lab and analyzed along with the environmental samples.

Trip Blanks – Trip blanks are used to determine if sample contamination is introduced during sample transportation and delivery. Trip blanks are prepared prior to a sampling event by filling a sample bottle with deionized water and securing the bottle lid. Trip blanks are then transported to and from the sampling site in the ice chest with normal sample bottles. Trip blanks are analyzed along with the environmental samples. Trip blanks are typically only collected when sampling for volatile compounds or metals. Of acrolein, endothall, glyphosate and imazamox, only acrolein and imazamox are volatile so trip blanks will only be utilized when sampling for those two compounds.

Field Duplicates – Field duplicates are used to assess variability attributable to sample collection, handling, and matrix heterogeneity. Field duplicates will be collected at the same time and in the same manner as, and analyzed with the environmental samples.

3.5.2 Laboratory Procedures

In the laboratory, several additional samples will be collected and analyzed to evaluate precision, accuracy, and the potential for laboratory contamination. These samples will include method blanks and laboratory control spikes.

Method Blanks – For each batch of samples, method blanks should be analyzed by the laboratory to determine the potential for laboratory contamination. Method blanks are prepared by the laboratory from the collection of reagent grade deionized water. At a minimum, the laboratory should report method blanks at a frequency of 5% (one method blank for each batch of up to 20 samples).

Laboratory Control Spikes – For each batch of samples, laboratory control spikes should be analyzed to evaluate accuracy. Laboratory control spikes are prepared by the laboratory by spiking blank water with a known concentration of the target analyte. Laboratory control spikes should be analyzed at a minimum frequency of 5%.

3.5.3 Data Validation

The results of these precision, accuracy, and contamination checks will be reviewed and evaluated to determine how well the results represent the actual concentrations present in the environment. Data collected from the laboratory will be validated through the following procedure.

- Chains of Custody - Verify that requested analyses were performed and that sampling dates are accurately noted in lab reports.
- Holding Times - Check for holding times in excess of EPA guidelines.
- Method Blanks - Review blank analyses for evidence of potential contamination.

- Laboratory Control Samples - Review control and control duplicate recoveries and relative percent differences (RPDs) as a check for analytical accuracy and precision.
- Surrogates - Review surrogate recoveries as a check for sample specific accuracy.
- Trip Blanks - Review trip blanks for evidence of potential contamination.
- Field Duplicates - Review field duplicate analyses for agreement of results as a check for analytical precision.
- Equipment Blanks – Review results to assure that field sampling equipment is not a source of cross contamination.

At the conclusion of this evaluation qualifiers will be assigned to results associated with QA/QC elements that are outside control limits in accordance with EPA guidelines (USEPA 1994 and 1999).

4.1 SECTION 5.3 EXCEPTION

Section 5.3 of the State Water Resources Control Board's *Policy for Implementation of Toxic Standards for Inland Surface Waters, Enclosed Bays and Estuaries of California* allows for short-term or seasonal exceptions from certain requirements for public entities that discharge aquatic pesticides to waters of the United States. Canals and other man-made waterways are often considered waters of the United States because they are tributary to other waters of the United States, in the case of TID, the Tuolumne, Merced and San Joaquin Rivers.

As waters of the United States and waters of the State, receiving water limitations, i.e. quality standards, apply to the canals. In the case of acrolein, active ingredient of Magnacide-H, the receiving water limitation is 21 ug/L. This means that water outside of the treatment area cannot exceed 21 ug/L acrolein at anytime and water inside the treatment area cannot exceed 21 ug/L acrolein after completion of the treatment event. It would not always be possible to effectively treat TID canals with Magnacide-H and comply with the receiving water limitations inside the canals.

The SIP Exception requires the discharger to provide a schedule for which the Exception is being requested. TID typically applies aquatic herbicides between the months of March and October. However, spot applications can be made during the off season months when weed growth becomes problematic and conditions are conducive to aquatic herbicide applications. For the purposes of the SIP Exception, TID would only apply Magnacide-H (acrolein) between March 1 and November 31. This does not imply that receiving water limitations will be exceeded for the entire period of March 1 through November 31 each year, only that exceedances of receiving water limitations, <u>within the canal system</u>, could occur for short periods of time during that period of time. Past experience indicates that the residual acrolein in the canal system is gone, either due to its own reactiveness or due to being irrigated out of the system, within several days of being applied.

5.1 REPORTING REQUIREMENTS

There are a variety of reporting requirements contained within the Permit and its accompanying Attachments. This section provides information on where to find the reporting requirements within the documentation, as well as some specific requirements with respect to Annual Reporting.

The annual report shall be submitted to the State Water Board's Deputy Director of the Division of Water Quality and the Executive Officer of the Central Valley Regional Board.

5.1.1 Annual Report

Each year TID shall prepare an annual report covering the period from January 1 through December 31st of each year. The report will be submitted by March 1st of the following year. The report will contain the information specified in Section C of the Monitoring and Reporting Program (MRP) contained within the General Permit (Attachment C), and summarized below.

- A certification that the aquatic herbicide application activities did not result in a discharge to any water body;
- An Executive Summary discussing the compliance or violation of the General Permit and the effectiveness of the APAP;
- Summary of the monitoring data, including an identification of water quality improvements or degradation as a result of the algaecide or aquatic herbicide application;
- A cover letter that clearly identifies violations or the permit; discusses corrective actions taken or planned; and provides a time schedule for corrective actions.
- A signature and certification as required by the Standard Provisions of the General Permit (Attachment B).

5.1.2 Additional Information

As required by the Monitoring and Reporting Program of the General Permit, TID shall complete and retain all information for each reporting year. If requested by the State Water Board's Deputy Director of the Division of Water Quality or the Executive Officer of the Central Valley Regional Board, TID will submit the annual information, which will include the following:

- An executive summary discussing compliance or violation of the General Permit and the effectiveness of the APAP;
- Summary of monitoring data including the identification of water quality improvements or degradation;
- Identification of BMPs and a discussion of their effectiveness;
- BMP modifications addressing violations of the Permit;
- Map showing the location of each treatment area;
- Types and amounts of aquatic herbicides used at each application event;

- Surface area/volume of treated area and/or other information used to calculate dosage and quantity of each aquatic herbicide;
- List of gates in treatment area that may discharge to surface waters; time of gate closure and reopening, including calculations used to determine these times, if applicable;
- Sampling results, including the specified information, and tabulated so that they are readily discernible;
- Recommendations to improve the monitoring program, BMPs, and APAP to ascertain compliance with the General Permit; and
- Summary of algaecide and aquatic herbicide application log.

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King of Prussia, PA. March.

United Phosphorus, Inc. 2010. Cascade Aquatic Herbicide Label.

King of Prussia, PA. March.

Appendix A

GENERAL PERMIT ADOPTED March 5, 2013
(INCLUDING ATTACHMENTS)
AND
FACT SHEET

STATE WATER RESOURCES CONTROL BOARD

1001 I Street, Sacramento, California 95814
http://www.waterboards.ca.gov/water_issues/programs/npdes/aquatic.shtml

WATER QUALITY ORDER NO. 2013-0002-DWQ
GENERAL PERMIT NO. CAG990005

STATEWIDE GENERAL NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT FOR RESIDUAL AQUATIC PESTICIDE DISCHARGES TO WATERS OF THE UNITED STATES FROM ALGAE AND AQUATIC WEED CONTROL APPLICATIONS

The following Dischargers may apply for coverage under this General Permit in compliance with the waste discharge requirements as set forth in this General Permit:

Table 1. Discharger Information

Dischargers	Any entity that discharges residual algaecides and aquatic herbicide and their degradation byproducts to waters of the United States* from algae and aquatic weed control applications.

Table 2. Administrative Information

This General Permit was adopted by the State Water Resources Control Board (hereinafter State Water Board) on:	**March 5, 2013**
This General Permit shall become effective on:	**December 1, 2013**
This General Permit shall expire on:	**November 30, 2018**
The U.S. Environmental Protection Agency (U.S. EPA) and the State Water Board have classified this discharge as a **minor** discharge.	

I, Jeanine Townsend, Clerk to the Board, do hereby certify that this General Permit with all attachments is a full, true, and correct copy of the General Permit adopted by the State Water Board on March 5, 2013.

AYE: Vice Chair Frances Spivy-Weber
Board Member Tam M. Doduc
Board Member Steven Moore
Board Member Felicia Marcus

NAY: None

ABSENT: None

ABSTAIN: Chairman Charles R. Hoppin

Jeanine Townsend

Jeanine Townsend
Clerk to the Board

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I. DISCHARGE INFORMATION

Pesticide formulations may include "active ingredients"* and "inert ingredients."* Adjuvants* or surfactants may be added to the ingredients in the application equipment used in delivery of the pesticide. As part of the registration process of pesticides for use in California, U.S. EPA and the California Department of Pesticide Regulation (DPR) evaluate data submitted by registrants to ensure that a product used according to label instructions will cause no harm or adverse impact on non-target organisms that cannot be reduced or mitigated with protective measures or use restrictions. The Clean Water Act (CWA) section 301(a) broadly prohibits the discharge of any pollutant to waters of the United States, except in compliance with an NPDES permit. Residual pesticides* discharged into surface waters constitute pollutants within the meaning of the CWA even if the discharge is in compliance with the registration requirements of the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA). Therefore, coverage under an NPDES permit is required.

The discharge of algaecides and aquatic herbicides and their residues to surface waters for algae and aquatic weed control throughout the State of California may pose a threat to existing and potential beneficial uses of waters of the United States if not properly controlled and regulated.

This General Permit regulates the discharge of aquatic pesticides* (algaecides and aquatic herbicides) used for algae and aquatic weed control to waters of the United States. These are algaecides and aquatic herbicides with registration labels that explicitly allow direct application to water bodies.

II. PERMIT COVERAGE AND APPLICATION REQUIREMENTS

A. General Permit Coverage

Except for discharges on tribal lands that are regulated by a federal permit, this General Permit covers the point source* discharge to waters of the United States of residues resulting from pesticide applications using products containing 2,4-D, acrolein, copper, diquat, endothall, fluridone, glyphosate, imazamox, imazapyr, penoxsulam, sodium carbonate peroxyhydrate, and triclopyr-based algaecides and aquatic herbicides, and adjuvants containing ingredients represented by the surrogate nonylphenol. This General Permit covers only discharges of algaecides, and aquatic herbicides that are currently registered for use in California, or that become registered for use and contain the above-listed active ingredients and ingredients represented by the surrogate of nonylphenol.

* An asterisk means the term is defined in Attachment A. This applies to all sections of this General permit.

This General Permit does not cover agricultural storm water discharges or return flows from irrigated agriculture because these discharges are not defined as “point sources” and do not require coverage under an NPDES permit. This General Permit also does not cover other indirect or nonpoint source discharges from applications of algaecides and aquatic herbicides, including discharges of pesticides to land that may be conveyed in storm water or irrigation runoff.

As shown in Table 1, this General Permit becomes effective on December 1, 2013. To obtain coverage under this General Permit on or after that date, Dischargers must submit their application for coverage as set forth in Section II.C below, at least 90 days prior to their first pesticide application.

B. Discharger

A Discharger under this General Permit includes any entity involved in the application of algaecides and aquatic herbicides that results in a discharge of algaecides and aquatic herbicides and their residues and degradation byproducts to waters of the United States, and meets either or both of the following two criteria:

The entity has control over the financing for or the decision to perform algaecide and aquatic herbicide applications that result in discharges, including the ability to modify those decisions; or

The entity has day-to-day control of algaecide and aquatic herbicide applications or performs activities that are necessary to ensure compliance with this General Permit. For example, the entity is authorized to direct workers to carry out activities required by this General Permit or perform such activities themselves.

C. General Permit Application

To obtain authorization under this General Permit, Dischargers must submit to the State Water Board a complete application that consists of the following:

1. A Notice of Intent (NOI) shown as Attachment E, signed in accordance with the signatory requirements of the Standard Provisions in Attachment B;
2. An application fee. A fee is required only for new Dischargers. Dischargersenrolled under Order No. 2004-0009-DWQ and applying for coverage under this Permit will be billed during the regular billing cycle; and
3. An Aquatic Pesticide* Application Plan (APAP).

Within 90 days of receipt of an application, the State Water Board's Deputy Director of the Division of Water Quality (Deputy Director) will either issue a Notice of Applicability (NOA) or deny the application. The NOA will specify the permitted algaecide and aquatic herbicide active ingredients that may be used, and any region-specific conditions and requirements not stated in this General Permit. Any such region-specific conditions and requirements shall be enforceable. The Discharger is authorized to discharge starting on the date of the NOA.

Alternatively, the Deputy Director or a Regional Water Board Executive Officer may issue a Notice of Exclusion (NOE),[1] which either terminates the permit coverage or requires submittal of an application for an individual permit or alternative general permit.

D. Fees

The fee for enrollment under this General Permit shall be based on section 2200(b)(9) category 3 of title 23, California Code of Regulations, which is available at http://www.waterboards.ca.gov/resources/fees/docs/fy1112fee_schdl_npdes_prmt.pdf and is payable to the State Water Board.

E. Terminating Coverage

To terminate permit coverage, a Discharger must submit a complete and accurate Notice of Termination (NOT) provided in Attachment F. The Discharger's authorization to discharge under this General Permit terminates on the day of the coverage termination letter issued by the Deputy Director. Prior to the termination effective date, the Discharger is subject to the terms and conditions of this General Permit and is responsible for submitting the annual fee and all reports associated with this General Permit.

A Discharger must submit an NOT when one of the following conditions occurs:

1. A new operator has taken over responsibility of the Discharger's algae or aquatic weed control activities covered under an existing NOA;
2. The Discharger has ceased all discharges from the application of algaecides and aquatic herbicide for which it obtained General Permit coverage and does not expect to discharge during the remainder of this General Permit term; or
3. The Discharger has obtained coverage under an individual permit or an alternative general permit for all discharges required to be covered by an NPDES permit.

III. FINDINGS

The Fact Sheet (Attachment D), which contains the background information and rationale for the requirements in this General Permit, is hereby incorporated into this General Permit and constitutes its findings. All other attachments (A, B, C, and E through G) are also incorporated into this General Permit.

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[1] An NOE is a one-page notice that indicates and justifies why the Discharger or proposed Discharger is not eligible for coverage under this General Permit and states the reason why. This justification can include, but is not limited to, necessity to comply with a total maximum daily load or to protect sensitive water bodies. The NOE can also indicate that the coverage is denied if feasible alternatives to the selected pesticide application project are not analyzed.

THEREFORE, IT IS HEREBY ORDERED that this General Permit supersedes Order No. 2004-0009-DWQ except for enforcement purposes, and in order to meet the provisions contained in division 7 of the Water Code (commencing with §13000) and regulations adopted thereunder, and the provisions of the CWA and regulations and guidelines adopted thereunder, the Discharger shall comply with the requirements in this Order.

IV. DISCHARGE PROHIBITIONS

A. The discharge of residual algaecides and aquatic herbicides in a manner different from that described in this General Permit is prohibited.

B. The discharge of residual algaecides and aquatic herbicides shall not create a nuisance as defined in section 13050 of the California Water Code.

C. The discharge shall not cause, have a reasonable potential to cause, or contribute to an in-stream excursion above any applicable standard or criterion promulgated by U.S. EPA pursuant to section 303 of the CWA, or water quality objective adopted by the State or Regional Water Boards.

D. All pesticides are prohibited from the waters of the Lahontan Region (Region 6). The use of this permit is invalid in the Lahontan Region unless the discharger has requested a prohibition exemption from the Lahontan Water Board and the Lahontan Water Board has granted an exemption for the use of algaecides or aquatic herbicides.

V. EFFLUENT LIMITATIONS

A. The discharge of residual algaecides and aquatic herbicides must meet applicable water quality standards; and

B. Dischargers shall implement Best Management Practices (BMPs) when applying aquatic algaecides and aquatic herbicides. The BMPs must be provided in the APAP which is described in Section VIII.C below.

VI. RECEIVING WATER LIMITATIONS

The discharge shall not result in any of the following:

A. The discharge of residual algaecides and aquatic herbicides shall not cause or contribute to an exceedance of the following limitations in the receiving water:*

Table 3. Receiving Water Limitations

Constituent/ Parameter	BENEFICIAL USE[1]				Basis
	MUN, µg/L	WARM or COLD, µg/L	Other than MUN, WARM, or COLD, µg/L	All Designations	
2,4-D	70				U.S. EPA MCL
Acrolein[2]	320	21	780		U.S. EPA Water Quality Criteria, 1986.
Copper[2]				Dissolved Freshwater[3] Copper Chronic = 0.960exp{0.8545 [ln(hardness[4])] – 1.702} [5, 6] Dissolved saltwater[3] Copper Chronic = 0.83exp{0.8545 [ln(hardness[4])] – 1.702} [5,6]	California Toxics Rule
Diquat	20				U.S. EPA MCL
Endothall	100				U.S. EPA MCL
Fluridone	560				U.S. EPA Integrated Risk Information System
Glyphosate	700				U.S. EPA MCL
Nonylphenol				Freshwater Chronic Criterion = 6.6 µg/L Saltwater Chronic Criterion = 1.7 µg/L	U.S. EPA National Recommended Ambient Water Quality Criteria
Toxicity	Algaecide and aquatic herbicide applications shall not cause or contribute to toxicity in receiving water(s).				Regional Water Boards' Basin Plans

Notes:
1. See Regional Water Boards' Water Quality Control Plans (Basin Plans) for beneficial use definitions.
2. Public entities and mutual water companies* listed in Attachment G are not required to meet these limitations in receiving waters during the exception period described in the APAP and Section VIII.C.10 below.
3. For waters in which the salinity is equal to or less than 1 part per thousand 95% or more of the time, the freshwater criteria apply. For waters in which the salinity is equal to or greater than 10 parts per thousand 95% or more of the time, saltwater criteria apply. For waters in which the salinity is between 1 and 10 parts per thousand, the applicable criteria are the more stringent of the freshwater or saltwater criteria.
4. For freshwater aquatic life criteria, waters with a hardness 400 mg/L or less as calcium carbonate, the actual ambient hardness of surface water shall be used. For waters with a hardness of over 400 mg/L as calcium carbonate, a hardness of 400 mg/L as calcium carbonate shall be used with a default Water-Effect Ratio of 1.
5. Values should be rounded to two significant figures.
6. This limitation does not apply to the Sacramento River and its tributaries above the State Highway 32 Bridge at Hamilton City. See Table III-1 of the Basin Plan for the Sacramento and San Joaquin River Basins for copper limitation.

B. **Dissolved Oxygen.** Dissolved oxygen to be below the Regional Water Board Basin Plans' dissolved oxygen objectives for the receiving water.

C. **Floating Material.** Floating material to be present in the amounts that cause nuisance or adversely affect beneficial uses.

D. **Settleable Substances.** Settleable substances to be present in concentrations that result in the deposition of material that causes nuisance or adversely affects beneficial uses.

E. **Suspended Material.** Suspended material to be present in concentrations that cause nuisance or adversely affect beneficial uses.

F. **Taste and Odors.** Taste- or odor-producing substances to be present in concentrations that impart undesirable tastes or odors to fish flesh or other edible products of aquatic origin, or that cause nuisance, or otherwise adversely affect beneficial uses or domestic or municipal water supplies.

G. **Toxic Pollutants.** Toxic pollutants to be present in the water column, sediments, or biota in concentrations that adversely affect beneficial uses; that produce detrimental response in human, plant, animal, or aquatic life; or that bioaccumulate in aquatic resources at levels which are harmful to human health.

H. **Color.** Esthetically undesirable discoloration.

I. **Aquatic Communities.** Aquatic communities and populations, including vertebrates, invertebrates, and non-target plant species to be degraded.

VII. RECEIVING WATER MONITORING TRIGGERS

In the absence of Receiving Water Limitations, the Receiving Water Monitoring Triggers shown in Table 4 below will be used to assess compliance with the narrative receiving water toxicity limitation. However, exceeding the monitoring trigger does not constitute a violation of this General Permit as long as the Discharger performs the following actions: (1) initiates additional investigations for the cause of the exceedance; (2) implements additional BMPs to reduce the algaecide and aquatic herbicide residue concentration to be below the monitoring triggers in future applications; and (3) evaluates the appropriateness of using alternative products.

Table 4. Receiving Water Monitoring Triggers

Ingredient	Unit	Instantaneous Maximum Monitoring Trigger	Basis
Imazapyr	mg/L	11.2	U.S. EPA Office of Pesticides *Ecotoxicity Database*
Triclopyr Triethylamine	mg/L	13.0	U.S. EPA Office of Pesticides *Ecotoxicity Database*

VIII. AQUATIC PESTICIDE USE REQUIREMENTS

A. Application Schedule

The Discharger shall provide a phone number or other specific contact information to all persons who request the Discharger's application schedule. The Discharger shall provide the requester with the most current application schedule and inform the requester if the schedule is subject to change. Information may be made available by electronic means, including posting prominently on a well-known website.

B. Public Notice Requirements

Every calendar year, at least 15 days prior to the first application of algaecide or aquatic herbicide, the Discharger shall notify potentially affected public agencies. The Discharger shall post the notification on its website if available. The notification shall include the following information:

1. A statement of the discharger's intent to apply algaecide or aquatic herbicide(s);
2. Name of algaecide and aquatic herbicide(s);
3. Purpose of use;
4. General time period and locations of expected use;
5. Any water use restrictions or precautions during treatment; and
6. A phone number that interested persons may call to obtain additional information from the Discharger.

C. Aquatic Pesticides Application Plan (APAP)

Dischargers shall submit an APAP at least 90 days before the expected day of permit coverage. The APAP shall contain, but not be limited to, the following elements sufficient to address each proposed treatment area:*

1. Description of the water system to which algaecides and aquatic herbicides are being applied;
2. Description of the treatment area in the water system;
3. Description of types of weed(s) and algae that are being controlled and why;
4. Algaecide and aquatic herbicide products or types of algaecides and aquatic herbicides expected to be used and if known their degradation byproducts, the method in which they are applied, and if applicable, the adjuvants and surfactants used;
5. Discussion of the factors influencing the decision to select algaecide and aquatic herbicide applications for algae and weed control;
6. If applicable, list the gates or control structures to be used to control the extent of receiving waters potentially affected by algaecide and aquatic herbicide application and provide an inspection schedule of those gates or control structures to ensure they are not leaking;
7. If the Discharger has been granted a short-term or seasonal exception under State Water Board *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays,* and Estuaries of California* (Policy) section 5.3 from meeting acrolein and copper receiving water limitations, provide the beginning and ending dates of the exception period, and justification for the needed time for the exception. If algaecide and aquatic herbicide applications occur outside of the exception period, describe plans to ensure that receiving water criteria are not exceeded because the Dischargers must comply with the

acrolein and copper receiving water limitations for all applications that occur outside of the exception period;

8. Description of monitoring program;
9. Description of procedures used to prevent sample contamination from persons, equipment, and vehicles associated with algaecide and aquatic herbicide application;
10. Description of the BMPs to be implemented. The BMPs shall include, at the minimum:
    a. Measures to prevent algaecide and aquatic herbicide spill and for spill containment during the event of a spill;
    b. Measures to ensure that only an appropriate rate of application consistent with product label requirements is applied for the targeted weeds or algae;
    c. The Discharger's plan in educating its staff and algaecide and aquatic herbicide applicators on how to avoid any potential adverse effects* from the algaecide and aquatic herbicide applications;
    d. Discussion on planning and coordination with nearby farmers and agencies with water rights diversion so that beneficial uses of the water (irrigation, drinking water supply, domestic stock water, etc.) are not impacted during the treatment period; and
    e. A description of measures that will be used for preventing fish kill when algaecides and aquatic herbicides will be used for algae and aquatic weed controls.
11. Examination of Possible Alternatives. Dischargers should examine the alternatives to algaecide and aquatic herbicide use to reduce the need for applying algaecides and herbicides. Such methods include:
    a. Evaluating the following management options, in which the impact to water quality, impact to non-target organisms including plants, algaecide and aquatic herbicide resistance, feasibility, and cost effectiveness should be considered:
        i. No action;
        ii. Prevention;
        iii. Mechanical or physical methods;
        iv. Cultural methods;
        v. Biological control agents; and
        vi. Algaecides and aquatic herbicides;

        If there are no alternatives to algaecides and aquatic herbicides, Dischargers shall use the minimum amount of algaecides and aquatic herbicides that is necessary to have an effective control program and is consistent with the algaecide and aquatic herbicide product label requirements.

b. Using the least intrusive method of algaecide and aquatic herbicide application; and

c. Applying a decision matrix concept to the choice of the most appropriate formulation.

D. APAP Processing, Approval, and Modifications

Upon receipt of an APAP, staff will post it on the State Water Board's website for a 30-day public comment period[2] and will distribute a notice via the State Water Board's Lyris list that an APAP has been posted. Staff will coordinate with Regional Water Board staff in reviewing the application package for completeness and applicability to this General Permit. If no comments are received and State and Regional Water Board staff deem the APAP complete, the Deputy Director will issue an NOA within five (5) working days of closure of the comment period. If comments are received, staff will work with Regional Water Board staff and the Discharger to address the comments to allow the Deputy Director to issue an NOA as expeditiously as possible. Permit coverage will begin when the Discharger receives the NOA.

Major changes to the APAP shall be submitted to the Deputy Director for approval. Examples of major changes include using a different product other than what is specified in the APAP, changing an application method that may result in different amounts of pesticides being applied, or adding or deleting BMPs.

E. Algaecide and Aquatic Herbicide Application Log

The Discharger shall maintain a log for each algaecide and aquatic herbicide application. The application log shall contain, at a minimum, the following information:

1. Date of application;
2. Location of application;
3. Name of applicator;
4. Type and amount of algaecide and aquatic herbicide used;
5. Application details, such as flow and level of water body, time application started and stopped, algaecide and aquatic herbicide application rate and concentration;
6. Visual monitoring assessment; and
7. Certification that applicator(s) followed the APAP.

[2] See Waterkeeper Alliance, Inc. v. EPA, 399 F.3d 486 (2nd Cir. 2005).

IX. PROVISIONS

A. Standard Provisions

1. All Dischargers authorized to discharge under this General Permit shall comply with the Federal Standard Provisions included in Attachment B of this General Permit.
2. This General Permit does not authorize the discharge of residual algaecides and aquatic herbicides or their degradation byproducts to waters of the United States that are impaired by the active ingredient of the algaecides and herbicides used. Impaired waters are those waters not meeting water quality standards pursuant to section 303(d) of the CWA. California impaired waters are listed on: http://www.waterboards.ca.gov/water_issues/programs/tmdl/2010state_ir_reports/2010_combo303d.xls.
3. This General Permit does not authorize any take of endangered species. The discharge is prohibited from adversely impacting biologically sensitive or critical habitats, including, but not limited to, habitat of species listed under federal or state endangered species laws. To ensure that endangered species issues are raised to the responsible agencies, the State Water Board has notified the U.S. Fish and Wildlife Service, the National Marine Fisheries Service, and the California Department of Fish and Wildlife of this General Permit.
4. The State Water Board may use this General Permit to regulate the discharge of algaecides and aquatic herbicides and their residues to a surface water classified as Outstanding National Resource Waters or as a water body impaired by unknown toxicity only after the following conditions are satisfied: (1) the proposed project will comply with the limitations and discharge requirements specified in the General Permit; and (2) if required, the proposed algaecide and aquatic herbicide application qualifies for and has been granted a Basin Plan prohibition exception prior to discharge. The two bodies of water that are classified as Outstanding National Resource Waters in California are Lake Tahoe and Mono Lake.
5. The Discharger must follow all FIFRA pesticide label instructions and any Restricted Material Use Permits issued by a County Agricultural Commissioner.
6. All adjuvants used with the algaecides and aquatic herbicides must be labeled for aquatic use.
7. The Discharger must comply with effluent and receiving water limitations and must develop and implement an APAP.
8. To reduce the potential impacts to water quality, Dischargers shall implement the feasible alternatives to algaecide and aquatic herbicide use that are identified in the APAP.
9. All Dischargers authorized to discharge under this General Permit shall comply with discharge prohibitions and other requirements contained in Basin Plans, as implemented by the State and the nine Regional Water Boards.

10. All Dischargers authorized to discharge under this General Permit shall comply with the following provisions:
    a. After notice and opportunity for a hearing, this General Permit may be terminated or modified for cause, including, but not limited to:
        i. Violation of any term or condition contained in this General Permit;
        ii. Obtaining this General Permit by misrepresentation or by failing to disclose fully all relevant facts;
        iii. A change in any condition that requires either a temporary or permanent reduction or elimination of the authorized discharge; and
        iv. A material change in the character, location, or volume of discharge (if applicable).
    b. The provisions of this General Permit are severable. If any provision of this General Permit is found invalid, the remainder of this General Permit shall not be affected.
    c. The Discharger shall maintain a copy of this General Permit and make it available at all times to operating personnel. Key operating personnel shall be familiar with its content.
    d. Laboratories that perform sample analyses must be identified in all monitoring reports submitted to the State and Regional Water Boards.
    e. All monitoring and analysis instruments and devices used by the Discharger to fulfill the prescribed monitoring program shall be properly maintained and calibrated based on manufacturer's recommendations to ensure their continued accuracy.
    f. Each Discharger shall file with the State Water Board and the appropriate Regional Water Board technical reports on self monitoring* performed according to the detailed specifications contained in the Monitoring and Reporting Program attached to this General Permit.
    g. The State and Regional Water Board are authorized to enforce the terms of this General Permit under provisions of the California Water Code, including, but not limited to, sections 13385, 13386, and 13387.

B. Monitoring and Reporting Program Requirements

The Discharger shall comply with the Monitoring and Reporting Program, and future revisions thereto, in Attachment C of this General Permit.

C. Special Provisions

1. Reopener Provisions

This General Permit may be reopened for modification and reissuance in accordance with the provisions contained in title 40 Code Federal Regulation (40 C.F.R.) section 122.62, and for the following reasons:

a. **Addition to the Public Entity List**. This General Permit may be reopened to modify Attachment G if any additional entity becomes qualified for a Policy section 5.3 exception.

b. **Addition of Aquatic Pesticide Active Ingredients**. This General Permit may be reopened to add additional algaecide and aquatic herbicide active ingredients if new active ingredients are registered by U.S. EPA and DPR.

c. **Acute and Chronic Toxicity.** If the State Water Board revises the Policy toxicity control provisions that would require new implementation procedures including the establishment of numeric chronic toxicity limitations, this General Permit may be reopened to include numeric acute and/or chronic toxicity receiving water limitations based on the new provisions.

d. **Receiving Water Limitations.** This General Permit may be reopened to add numeric Receiving Water Limitations for the residual algaecide and aquatic herbicides* exceeding the triggers if the additional investigation results show necessary.

e. **Endangered Species Act**. If U.S. EPA develops biological opinions regarding algaecides and aquatic herbicides included in this General Permit, this General Permit may be re-opened to add or modify Receiving Water Limitations/Monitoring Triggers for aquatic herbicides and algaecides and their residues of concern, if necessary.

2. **Change of Discharger**

In the event of any change in the Discharger that has obtained coverage under this General Permit, the previous Discharger shall notify the new Discharger of the existence of this General Permit by letter. A copy of the letter shall be immediately forwarded to the Deputy Director. After receipt of the letter, the Deputy Director will terminate the permit coverage to the previous Discharger. The new Discharger shall complete and submit to the Deputy Director a revised NOI form (Attachment E), and any revisions to the APAP prepared by the previous control entity or a new APAP.

3. **Application Package**

Dischargers who seek coverage under this General Permit shall file a complete application package at least 90 days before the expected date of algaecide and aquatic herbicide application. The application package shall include an NOI, APAP, and application fee. Enrolled Dischargers will be billed annually thereafter.

4. **Special Studies, Technical Reports, and Additional Monitoring Requirements**

a. **Additional Investigation**

Each Discharger must conduct additional investigations when the chemical monitoring shows exceedance of any receiving water limitation or monitoring trigger. The additional investigations shall identify corrective actions to

eliminate exceedance of receiving water limitations or monitoring triggers caused by the algaecide and aquatic herbicide application. The investigation shall include, but not be limited to evaluating the need to implement one or more of the following actions: revising and improving the existing BMPs, revising the mode of application, using less toxic algaecide and aquatic herbicide products, or selecting alternative methods for algae and aquatic weed control.

b. **Qualified Biologist Certification Following Project Completion**

Upon completion of an algaecide and aquatic herbicide project, public entities and mutual water companies listed in Attachment G of this General Permit shall provide certification by a qualified biologist* that beneficial uses of receiving waters have been restored.

5. **Corrective Action**

a. **Exceedance of Receiving Water Limitations or Monitoring Triggers.**

If a Receiving Water Limitation in Table 3 or a Monitoring Trigger in Table 4 is exceeded in the Event or Post-Event sample, the Discharger shall perform the following actions: (1) initiate additional investigations for the cause of the exceedance, (2) implement appropriate BMPs to reduce the algaecide and aquatic herbicide concentration to be below the applicable receiving water limitation or monitoring triggers in future applications, and (3) evaluate the appropriateness of using alternative products.

b. **Revision of Control Measures.**

If any of the following situations occur, the Discharger must review and, as necessary, revise the evaluation and selection of the control measures to ensure that the situation is eliminated and will not be repeated in the future:

i. An unauthorized release or discharge associated with the application of algaecides and aquatic herbicides (e.g., spill, leak, or discharge not authorized by this or another NPDES permit) occurs;

ii. The Discharger becomes aware, or the State Water Board concludes, that the control measures are not adequate/sufficient for the discharge to meet applicable water quality standards;

iii. Any monitoring activities indicate that the Discharger failed to:

a) Follow the label instructions for the product used;

b) Use the minimum amount of algaecide and aquatic herbicide product per application and optimum frequency of algaecide and aquatic herbicide applications that are necessary for an effective control program consistent with reducing the potential for development of resistance and the algaecide and aquatic herbicide product label requirements;

c) Perform regular maintenance activities to reduce leaks, spills, or other unintended discharges of algaecides and aquatic herbicides

associated with the application of algaecides and aquatic herbicides covered under this General Permit; or

d) Maintain algaecide and aquatic herbicide application equipment in proper operating condition by adhering to any manufacturer's conditions and industry practices, and by calibrating, cleaning, and repairing such equipment on a regular basis to ensure effective algaecide and aquatic herbicide application and algae and aquatic weed control. The Discharger must ensure that the equipment's rate of algaecide and aquatic herbicide application is calibrated to deliver the minimum quantity of algaecides and aquatic herbicides that is needed to have an effective control program and is consistent with the algaecide and aquatic herbicide product label requirements.

c. **Corrective Action Deadlines**

If the Discharger determines that changes to the control measures are necessary to eliminate any situation identified above, the Discharger shall make such changes within 60 days. The Discharger shall take the corrective action before any further discharge of the algaecides and aquatic herbicides and their residues will be allowed.

d. **Effect of Corrective Action**

The occurrence of a situation identified in Section C.5.b above may constitute a violation of this General Permit. Correcting the situation according to Corrective Action Section C.5.c above does not absolve the Discharger of liability for any original violation. However, failure to comply with any Corrective Action as required by Section C.5.c above constitutes an additional permit violation. The State and Regional Water Boards will consider the appropriateness and promptness of corrective action in determining enforcement responses to permit violations.

The State Water Board and the appropriate Regional Water Boards may impose additional requirements and schedules of compliance, including requirements to submit additional information concerning the condition(s) triggering corrective action or schedules and requirements more stringent than specified in this General Permit. Those requirements and schedules will supersede those in the Corrective Action Section above if such requirements conflict.

6. **Adverse Incident to Threatened or Endangered Species or Critical Habitat**

If the Discharger becomes aware of an adverse incident* to a federally-listed threatened or endangered species or its federally-designated critical habitat, that may have resulted from the Discharger's algaecides and aquatic herbicides application, the Discharger must immediately notify the National Marine Fisheries Service (NMFS) Santa Rosa office by phone at (707) 575-6050 in the case of an anadromous or marine species, or the U.S. Fish and Wildlife Service (FWS) at (916) 414-6600 in the case of a terrestrial or freshwater species. This notification must be made by telephone immediately when the Discharger becomes aware of the adverse incident and must include at least the following information:

a. The caller's name, telephone number, and e-mail address;

b. Applicator name and mailing address;

c. The name of the affected species;

d. How and when the Discharger became aware of the adverse incident;

e. Description of the location of the adverse incident;

f. Description of the adverse incident, including the U.S. EPA pesticide registration number for each product applied in the area of the adverse incident; and

g. Description of any steps that have been taken or will be taken to alleviate the adverse impact to the species.

Additional information on federally-listed threatened or endangered species and federally-designated critical habitat is available from NMFS (www.nmfs.noaa.gov) for anadromous or marine species or FWS (www.fws.gov) for terrestrial or freshwater species.

X. COMPLIANCE DETERMINATION

Compliance with receiving water limitations and monitoring triggers shall be determined through event and post-event monitoring results.

Attachment A – Definitions

Active Ingredient
Active ingredients are ingredients disclosed by manufacturers that yield toxic effects* on target organisms.

Adjuvants
Adjuvants are ingredients that are mixed with herbicides prior to an application event and are often trade secrets. These ingredients are chosen by the Discharger, based on site characteristics, and typically increase the effectiveness of pesticides on target organisms.

Adverse Incident
Adverse Incident means a situation where the Discharger observes upon inspection or becomes aware of in which**:**

- A person or non-target organism may have been exposed to an algaecide or aquatic herbicide residue; and
- The person or non-target organism suffered an adverse or toxic effect.

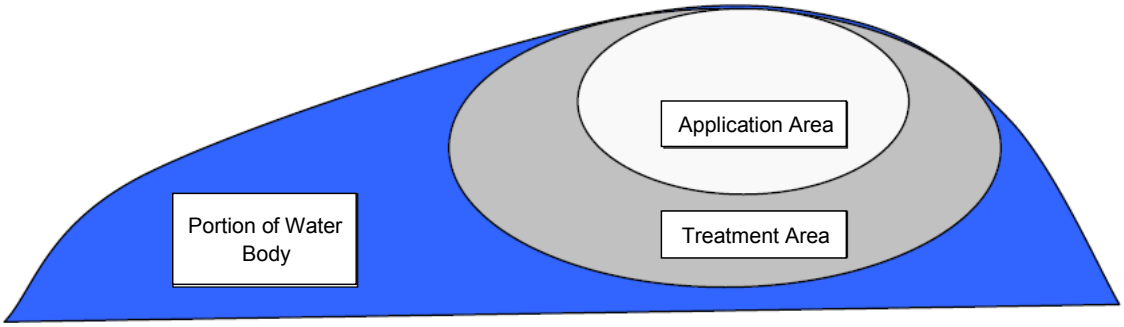
Adverse or Toxic Effect
An "adverse or toxic effect" includes any impact that occurs within waters of the United States on non-target organisms as a result of algaecide or aquatic herbicide residue discharge. Examples of these effects may include:

- Distressed or dead juvenile and small fishes
- Washed up or floating fish
- Fish swimming abnormally or erratically
- Fish lying lethargically at water surface or in shallow water
- Fish that are listless or nonresponsive to disturbance
- Stunting, wilting, or desiccation of non-target submerged or emergent aquatic plants
- Other dead or visibly distressed non-target aquatic organisms (amphibians, turtles, invertebrates, etc.)

An "adverse or toxic effect" also includes any adverse effects to humans (e.g., skin rashes) or domesticated animals that occur either directly or indirectly from a discharge to waters of the United States that are temporally and spatially related to exposure to an algaecide and aquatic herbicide residue (e.g., vomiting, lethargy).

Algae Control
Algae control means the treatment of filamentous algae, cyanobacteria (blue-green algae), or algal species that have the potential to affect human or environmental health.

Application Area
The application area is the area to which aquatic pesticides are directly applied.



Application Event
The application event is the time that introduction of the algaecide or aquatic herbicide to the treatment area takes place, not the length of time that the environment is exposed to the algaecide or aquatic herbicide.

Aquatic Pesticides
Aquatic pesticides in this General Permit are limited to algaecides and aquatic herbicides labeled for aquatic use to control aquatic weeds or algae.

Beneficial Uses
Beneficial uses of the waters of the state that may be protected against quality degradation include, but are not limited to, domestic, municipal, agricultural and industrial supply; power generation; recreation; aesthetic enjoyment; navigation; and preservation and enhancement of fish, wildlife, and other aquatic resources or preserves.

Coalition
Specifically refers to a monitoring coalition which is a collaborative monitoring partnership of dischargers to develop a monitoring plan that addresses the monitoring requirements of this General Permit. The Coalition's monitoring plan will be submitted for Coalition members in lieu of individual monitoring plans from each member.

Enclosed Bays
Enclosed Bays means indentations along the coast that enclose an area of oceanic water within distinct headlands or harbor works. Enclosed bays include all bays where the narrowest distance between the headlands or outermost harbor works is less than 75 percent of the greatest dimension of the enclosed portion of the bay. Enclosed bays do not include inland surface waters or ocean waters.

Estuaries
Estuaries means waters, including coastal lagoons, located at the mouths of streams that serve as areas of mixing for fresh and ocean waters. Coastal lagoons and mouths of streams that are temporarily separated from the ocean by sandbars shall be considered estuaries. Estuarine waters shall be considered to extend from a bay or the open ocean to a point upstream where there is no significant mixing of freshwater and seawater. Estuaries do not include inland surface waters or ocean waters.

Half-Life
Half-life is the time required for half of the compound introduced into an ecosystem to be eliminated or disintegrated by natural processes.

Inert Ingredients
Inert ingredients are additional ingredients and are often trade secrets; therefore, they are not always disclosed by the manufacturer.

Mutual Water Company
A mutual water company is defined in the Public Utilities Code, section 2725 as “[a]ny private corporation or association organized for the purpose of delivering water to its stockholders and members at cost, including use of works for conserving, treating, and reclaiming water."

Point Source
Any discernible, confined, and discrete conveyance, including but not limited to, any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock concentrated animal feeding operation, landfill leachate collection system, or vessel or other floating craft from which pollutants are or may be discharged. This term does not include return flows from irrigated agriculture or agricultural storm water runoff.

Priority Pollutants
Priority pollutants are listed within the California Toxics Rule in 40 Code of Federal Regulations, section 131.38(b)(1). Criteria to protect aquatic life and human health are set for priority pollutants in the California Toxics Rule.

Public Entity
Public entity includes the federal government or a state, county, city and county, city, district, public authority, or public agency.

Qualified Biologist
A qualified biologist is a biologist who has the knowledge and experience in the ecosystem where the algaecide or aquatic herbicide is applied so that he or she can adequately evaluate whether the beneficial uses of the receiving waters have been protected and/or restored upon completion of the algaecide and aquatic herbicide application project.

Receiving Waters
Receiving waters are waters of the United States anywhere outside of the treatment area at anytime and anywhere inside the treatment area after completion of the treatment event.

Representative Monitoring Location
To be considered “representative,” at a minimum, a location must be similar in hydrology, algaecide or aquatic herbicide use, and other factors that affect the residual discharge to the areas being represented in that environmental setting.

Residual Algaecide and Aquatic Herbicide
Residual algaecide and aquatic herbicide are those portions of the pesticides that remain in

the water after the application and its intended purpose (injury or elimination of targeted pests) have been completed.

Self Monitoring
Sampling and analysis performed by the Discharger or Coalition to determine compliance with the Permit. All laboratory analyses must be conducted by a laboratory certified by the California Department of Public Health.

Treatment Area
The treatment area is the area being treated by the algaecide or aquatic herbicide for algae and aquatic weed control and, therefore, the area being targeted to receive an appropriate rate of application consistent with product label requirements of algaecide or aquatic herbicide. It is the responsibility of the Discharger to define the treatment area for each specific algaecide and aquatic herbicide application.

Waters of the United States

1. All waters which are currently used, were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide;
2. All interstate waters, including interstate “wetlands;”
3. All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sand flats, “wetlands,” sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds the use, degradation, or destruction of which would affect or could affect interstate or foreign commerce including any such waters:
   a. Which are or could be used by interstate or foreign travelers for recreational or other purposes;
   b. From which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or
   c. Which are used or could be used for industrial purposes by industries in interstate commerce.
4. All impoundments of waters otherwise defined as waters of the United States under this definition;
5. Tributaries of waters identified in items1 through 4 of this definition;
6. The territorial sea; and
7. "Wetlands" adjacent to waters (other than waters that are themselves wetlands) identified in paragraphs (1) through (6) of this definition. Waste treatment systems, including treatment ponds or lagoons designed to meet the requirements of CWA (other than cooling ponds as defined in 40 C.F.R. section 423.11(m) which also meet the criteria of this definition) are not waters of the United States. This exclusion applies only to manmade bodies of water which neither were originally created in waters of the United States (such as disposal area in wetlands) nor resulted from the impoundment of waters of the United States [See Note 1 of this Section.] Waters of the United States do not include prior converted cropland. Notwithstanding the determination of an area's status as prior converted cropland by any other federal agency, for the purposes of the Clean Water Act, the final authority regarding Clean Water Act jurisdiction remains with U.S. EPA.

Attachment B – Standard Provisions

I. STANDARD PROVISIONS – PERMIT COMPLIANCE (IF APPLICABLE)

A. Duty to Comply

1. The Discharger must comply with all of the conditions of this General Permit. Any noncompliance constitutes a violation of the CWA and the California Water Code and is grounds for enforcement action, for permit termination, revocation and reissuance, or modification; or denial of a permit renewal application. (40 C.F.R. §122.41(a).)
2. The Discharger shall comply with effluent standards or prohibitions established under section 307(a) of the CWA for toxic pollutants within the time provided in the regulations that establish these standards or prohibitions, even if this General Permit has not yet been modified to incorporate the requirement. (40 C.F.R. §122.41(a)(1).)

B. Need to Halt or Reduce Activity Not a Defense

It shall not be a defense for a Discharger in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this General Permit. (40 C.F.R. §122.41(c).)

C. Duty to Mitigate

The Discharger shall take all reasonable steps to minimize or prevent any discharge in violation of this General Permit that has a reasonable likelihood of adversely affecting human health or the environment. (40 C.F.R. §122.41(d).)

D. Proper Operation and Maintenance

The Discharger shall at all times properly operate and maintain all facilities and systems of control (and related appurtenances) which are installed or used by the Discharger to achieve compliance with the conditions of this General Permit. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. (40 C.F.R. §122.41(e).)

E. Property Rights

1. This General Permit does not convey any property rights of any sort or any exclusive privileges. (40 C.F.R. §122.41(g).)
2. The issuance of this General Permit does not authorize any injury to persons or property or invasion of other private rights, or any infringement of state or local law or regulations. (40 C.F.R. §122.5(c).)

F. Inspection and Entry

The Discharger shall allow the Regional Water Board, State Water Board, United States Environmental Protection Agency (U.S. EPA), and/or their authorized

representatives (including an authorized contractor acting as their representative), upon the presentation of credentials and other documents, as may be required by law, (40 C.F.R. §122.41(i); Water Code, §13383) to:

1. Enter upon the Discharger's premises where a regulated facility or activity is located or conducted, or where records are kept under the conditions of this General Permit;
2. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this General Permit;
3. Inspect and photograph, at reasonable times, any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this General Permit; and
4. Sample or monitor, at reasonable times, for the purposes of assuring General Permit compliance or as otherwise authorized by the CWA or the Water Code, any substances or parameters at any location.

II. STANDARD PROVISIONS – PERMIT ACTION

A. General

This General Permit may be modified, revoked and reissued, or terminated for cause. The filing of a request by the Discharger for modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance does not stay any General Permit condition. (40 C.F.R. §122.41(f).)

B. Duty to Reapply

If the Discharger wishes to continue an activity regulated by this General Permit after the expiration date of this General Permit, the Discharger must apply for and obtain authorization as required by the new permit. (40 C.F.R. §122.41(b).)

C. Transfers

This General Permit is not transferable to any person except after notice to the State Water Board. The State Water Board may require modification or revocation and reissuance of the General Permit to change the name of the Discharger and incorporate such other requirements as may be necessary under the CWA and the Water Code. (40 C.F.R. §122.41(l)(3); §122.61.)

D. Continuation of this Permit

If this permit is not reissued or replaced prior to the expiration date, it will be administratively continued in accordance with 40 C.F.R. section 122.6 and remain in full force and effect.

III. STANDARD PROVISIONS – MONITORING

Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity. (40 C.F.R. §122.41(j)(1).)

Monitoring results must be conducted according to test procedures under 40 C.F.R. part 136 unless other test procedures have been specified in this General Permit. (40 C.F.R. §122.41(j)(4); §122.44(i)(1)(iv).)

IV. STANDARD PROVISIONS – RECORDS

A. Records Retention

The Discharger shall retain records of all monitoring information, including all calibration and maintenance records, copies of all reports required by this General Permit, and records of all data used to complete the application for this General Permit, for a period of at least three (3) years from the date of the sample, measurement, report or application. This period may be extended by request of the the State Water Board's Deputy Director of the Division of Water Quality (Deputy Director) at any time. (40 C.F.R. §122.41(j)(2).)

B. Records of monitoring information shall include:

1. The date, exact place, and time of sampling or measurements (40 C.F.R. §122.41(j)(3)(i).);
2. The individual(s) who performed the sampling or measurements (40 C.F.R. §122.41(j)(3)(ii).);
3. The date(s) analyses were performed (40 C.F.R. §122.41(j)(3)(iii).);
4. The individual(s) who performed the analyses (40 C.F.R. §122.41(j)(3)(iv).);
5. The analytical techniques or methods used (40 C.F.R. §122.41(j)(3)(v).); and
6. The results of such analyses. (40 C.F.R. §122.41(j)(3)(vi).)

C. Claims of confidentiality for the following information will be denied (40 C.F.R. §122.7(b).):

1. The name and address of any permit applicant or Discharger (40 C.F.R. §122.7(b)(1).); and
2. Permit applications and attachments, permits and effluent data. (40 C.F.R. §122.7(b)(2).)

V. STANDARD PROVISIONS – REPORTING

A. Duty to Provide Information

The Discharger shall furnish to the Regional Water Board, State Water Board, or U.S. EPA within a reasonable time, any information which the Regional Water Board, State Water Board, or U.S. EPA may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this General Permit or to determine compliance with this General Permit. Upon request, the Discharger shall also furnish to the Regional Water Board, State Water Board, or U.S. EPA copies of records required to be kept by this General Permit. (40 C.F.R. §122.41(h); Wat. Code, §13267.)

B. Signatory and Certification Requirements

1. All applications, reports, or information submitted to the Regional Water Board, State Water Board, and/or U.S. EPA shall be signed and certified in accordance with Standard Provisions – Reporting V.B.2, V.B.3, V.B.4, V.B.5, and V.B.6 below. (40 C.F.R. §122.41(k).)

2. **For a corporation.** By a responsible corporate officer. For the purpose of this section, a responsible corporate officer means: (i) A president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who perfoms similar policy- or decision-making functions for the corporation, or (ii) the manager of one or more manufacturing, production, or operating facilities, provided, the manager is authorized to make management decisions which govern the operation of the regulated facility including having the explicit or implicit duty of making major capital investment recommendations, and initiating and directing other comprehensive measures to assure long term environmental compliance with environmental laws and regulations; the manager can ensure that the necessary systems are established or actions taken to gather complete and accurate information for permit application requirements; and where authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures.

3. **For a partnership or sole proprietorship.** By a general partner or the proprietor, respectively;

4. **For a municipality, state, federal, or other public agency:** All permit applications shall be signed by either a principal executive officer or ranking elected official. For purposes of this provision, a principal executive officer of a federal agency includes: (i) the chief executive officer of the agency, or (ii) a senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., Regional Administrators of U.S. EPA). (40 C.F.R. §122.22(a)(3).)

5. All reports required by this General Permit and other information requested by the Regional Water Board, State Water Board, or U.S. EPA shall be signed by a person described in Standard Provisions – Reporting V.B.1 above, or by a duly authorized representative of that person. A person is a duly authorized representative only if:

   a. The authorization is made in writing by a person described in Standard Provisions – Reporting V.B.1 above (40 C.F.R. §122.22(b)(1).);

   b. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity or an individual or a position having overall responsibility for environmental matters for the company. (A duly authorized representative may thus be either a named individual or any individual occupying a named position.) (40 C.F.R. §122.22(b)(2).); and

   c. The written authorization is submitted to the Regional Water Board and State Water Board. (40 C.F.R. §122.22(b)(3).)

6. If an authorization under Standard Provisions – Reporting V.B.1 above is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new authorization satisfying the requirements of Standard Provisions – Reporting V.B.1 above must be submitted to the Regional Water Board and State Water Board prior to or together with any reports, information, or applications, to be signed by an authorized representative. (40 C.F.R. §122.22(c).)

   Any person signing a document under Standard Provisions – Reporting V.B.1 or V.B.3 above shall make the following certification:

   "I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations." (40 C.F.R. §122.22(d).)

C. Monitoring Reports

1. Monitoring results shall be reported at the intervals specified in the Monitoring and Reporting Program (Attachment C) in this General Permit. (40 C.F.R. §122.22(l)(4).)
2. Monitoring results must be reported on a Self Monitoring* Report (SMR) form as agreed to by the Deputy Director and the Discharger.
3. If the Discharger monitors any pollutant more frequently than required by this General Permit using test procedures approved under 40 C.F.R part 136 or as specified in this General Permit, the results of this monitoring shall be included in the calculation and reporting of the data submitted in the SMR or a reporting form specified by the State Water Board. (40 C.F.R. §122.41(l)(4)(ii).)
4. Calculations for all limitations, which require averaging of measurements, shall utilize an arithmetic mean unless otherwise specified in this General Permit. (40 C.F.R. §122.41(l)(4)(iii).)

D. Compliance Schedules

Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of this General Permit, shall be submitted no later than 14 days following each schedule date. (40 C.F.R. §122.41(l)(5).)

E. Planned Changes

The Discharger shall give notice to the State and the Regional Water Board as soon as possible of any planned physical alterations or additions to the permitted activity or discharge. Notice is required under this provision (40 C.F.R. §122.41(l)(1)) only when

the alteration or addition could significantly change the nature or increase the quantity of pollutants discharged. This notification applies to pollutants that are subject neither to effluent limitations in this General Permit nor to notification requirements under 40 C.F.R. section 122.42(a)(1).

F. Anticipated Noncompliance

The Discharger shall give advance notice to the State and Regional Water Boards of any planned changes in the permitted discharge or activity that may result in noncompliance with General Permit requirements. (40 C.F.R. §122.41(l)(2).)

G. Other Noncompliance

The Discharger shall report all instances of noncompliance not reported under Standard Provisions – Reporting V.C, V.D, and V.E above at the time monitoring reports are submitted. The reports shall contain the information listed in Standard Provision – Reporting V.F above. (40 C.F.R. §122.41(l)(7).)

H. Other Information

When the Discharger becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application or in any report to the State Water Board, Regional Water Board, or U.S. EPA, the Discharger shall promptly submit such facts or information. (40 C.F.R. §122.41(l)(8).)

VI. STANDARD PROVISIONS – ENFORCEMENT

The State and the Regional Water Boards are authorized to enforce the terms of this General Permit under several provisions of the Water Code, including, but not limited to, sections 13385, 13386, and 13387.

Attachment C – Monitoring and Reporting Program

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ATTACHMENT C – MONITORING AND REPORTING PROGRAM

Section 122.48 of title 40 of the Code of Federal Regulations (40 C.F.R. §122.48) requires that all NPDES permits specify monitoring and reporting requirements. California Water Code sections 13267 and 13383 also authorize the State Water Resources Control Board (the State Water Board) and the Regional Water Quality Control Board (Regional Water Board) to require technical and monitoring reports. This Monitoring and Reporting Program (MRP) establishes monitoring and reporting requirements which implement federal and California State laws and regulations.

This MRP is designed to address the two key questions shown below. It also encourages Dischargers to form monitoring coalitions with others doing similar applications within a given watershed or doing applications of similar environmental settings (flowing water and non-flowing water). The Coalition or Discharger may select sites representing worst case scenarios or high-use areas for each active ingredient in each environmental setting. If the Discharger elects in its Aquatic Pesticide Application Plan (APAP) to undertake monitoring and reporting through a Coalition, then the Coalition will prepare and implement an MRP (pursuant to this Attachment C) and act on behalf of the Discharger with respect to monitoring and reporting. Otherwise, the Discharger will prepare and implement an individual MRP.

Question No. 1: Does the residual algaecides and aquatic herbicides discharge cause an exceedance of receiving water limitations?

Question No. 2: Does the discharge of residual algaecides and aquatic herbicides, including active ingredients, inert ingredients, and degradation byproducts, in any combination cause or contribute to an exceedance of the “no toxics in toxic amount” narrative toxicity objective?

If the Discharger elects in its APAP to undertake monitoring and reporting through a Coalition, the APAP should reference and attach the Coalition’s monitoring plan.

I. GENERAL MONITORING PROVISIONS

A. Samples and measurements taken as required herein shall be representative of the nature of the monitored discharge. All samples shall be taken at the anticipated monitoring locations specified in the Discharger’s or Coalition’s APAP.

B. All laboratory analyses shall be conducted at a laboratory certified for such analyses by the California Department of Public Health in accordance with California Water Code section 13176. Laboratories that perform sample analyses shall be identified in all monitoring reports. The Discharger shall institute a Quality Assurance-Quality Control Program for any onsite field measurements such as electric conductivity, pH, turbidity, and temperature. A manual containing the steps followed in this program must be kept in the laboratory and shall be available for inspection by the State Water Board and the appropriate Regional Water Board staff. The Quality Assurance-Quality Control Program must conform to United States Environmental Protection Agency (U.S. EPA) guidelines or to procedures approved by the State Water Board and the appropriate Regional Water Board.

C. All analyses shall be conducted in accordance with the latest edition of "Guidelines Establishing Test Procedures for Analysis of Pollutants," promulgated by the U.S. EPA in title 40 Code Federal Regulation (40 C.F.R.) 136 or equivalent methods that are commercially and reasonably available and that provide quantification of sampling parameters and constituents sufficient to evaluate compliance with applicable effluent limits and to perform reasonable potential analysis. Equivalent methods must be more sensitive than those specified in 40 C.F.R. 136 if the method is available in the 40 C.F.R. 136, and must be approved for use by the Regional Water Board Executive Officer.

Any procedures to prevent the contamination of samples as described in the monitoring program in the APAP shall be implemented.

D. Records of monitoring information shall include the following:

1. The date, exact place, and time of sampling or measurements;
2. The individuals who performed the sampling or measurements;
3. The dates analysis were performed;
4. The individuals who performed the analyses;
5. The analytical techniques or methods used; and
6. Results of analyses.

E. All monitoring instruments and devices used to fulfill the prescribed monitoring program shall be properly maintained and calibrated as necessary to ensure their accuracy.

F. Monitoring results, including noncompliance, shall be reported at intervals and in a manner specified in this MRP.

II. MONITORING LOCATIONS AND SAMPLE TYPES

A. Monitoring Locations

Each Discharger or Coalition shall establish monitoring locations specified in the APAP to demonstrate compliance with the receiving water limitations, discharge specifications, and other requirements in this General Permit. The number and location of samples shall be selected to answer the two key questions. A Discharger or Coalition may use representative monitoring locations* to characterize water quality for all waters of the United States within the Discharger's or Coalition's boundaries for each environmental setting (flowing water and non-flowing water). However, the Discharger or Coalition must provide justification for the selection of the representative monitoring locations. To be considered "representative," at a minimum, a location must be similar in hydrology, algaecides and aquatic herbicides use, and other factors that affect the discharge of algaecides and aquatic herbicides and their residues to surface waters as a result of applications to the areas being represented in that environmental setting. Each Discharger or Coalition must provide technical justification and identify which areas are to be considered representative. Monitoring location information shall include a description of the treatment area, GPS

coordinates if feasible, and algaecides and aquatic herbicides being applied. The specific monitoring locations initially identified as representative monitoring locations may be changed based on surveillance of the Discharger or Coalition.

B. Sample Types

The following monitoring is required for each sampling:

1. **Background Monitoring.** Background monitoring samples shall be collected upstream at the time of the application event* or in the application area* just prior to (up to 24 hours in advance of) the application event.
2. **Event Monitoring.** Event monitoring samples shall be collected immediately downstream of the treatment area in flowing waters or immediately outside of the treatment area in non-flowing waters, immediately after the application event, but after sufficient time has elapsed such that treated water would have exited the treatment area.
3. **Post-Event Monitoring.** Post-event monitoring samples shall be collected within the treatment area within one week after application.

III. RECEIVING WATER MONITORING REQUIREMENTS – SURFACE WATER

A. General Monitoring Requirements

The monitoring program described in the APAP shall be designed to answer the two key questions stated above. The monitoring program in the APAP shall describe the tasks and time schedules in which these two key questions will be addressed. Monitoring shall take place at locations that are being planned to be applied or may be applied as described in the Discharger's APAP.

The monitoring program described in the APAP must consider watershed specific attributes and waste constituents, based on the characteristics of applications within the Coalition's or Discharger's area, as well as the receiving water quality conditions. Developing the details of a monitoring design requires clearly defining several inputs to the design and then organizing these in a logical framework that supports effective decision making about indicators, monitoring locations, and monitoring frequency. The logical framework should describe:

1. The basic geographic and hydrographic features of the area, particularly application points and the pathways(s) of residue flows;
2. Algaecides and aquatic herbicides application practices and how they are distributed in space and time;
3. Relevant knowledge about the transport, fates, and effects of algaecides and aquatic herbicides, including best- and worst-case scenarios;
4. Description of the designated beneficial uses in each water body;
5. Relevant knowledge about the action of cumulative and indirect effects;

6. Mechanisms through which algaecides and aquatic herbicides applications could lead to designated use impacts, given the basic features of the area;
7. Known and potential impacts of algaecides and aquatic herbicides applications on water quality, ranked in terms of relative risk, based on factors such as magnitude, frequency and duration;
8. Sufficient number of sampling areas to assess the entire Discharger's or Coalition's area of influence; and
9. A description of sampling methods and a sampling schedule.

In conducting the receiving water sampling, a log shall be kept of the receiving water conditions throughout the reach bounded by the treatment area. Attention shall be given to the presence or absence of:

1. Floating or suspended matter;
2. Discoloration;
3. Bottom deposits;
4. Aquatic life;
5. Visible films, sheens, or coatings;
6. Fungi, slimes, or objectionable growths; and
7. Potential nuisance conditions.

Notes on receiving water conditions shall be summarized in the monitoring report.

B. Visual, Physical, and Chemical Monitoring Requirements

Monitoring shall take place at locations that are described and scheduled in the Coalition's or Discharger's APAP. Monitoring for all active ingredients must include frequent and routine monitoring on a pre-determined schedule, as summarized in the Table C-1 below:

Table C-1. Monitoring Requirements

Sample Type	Constituent/Parameter	Units	Sample Method	Minimum Sampling Frequency	Sample Type Requirement	Required Analytical Test Method
Visual	1. Monitoring area description (pond, lake, open waterway, channel, etc.) 2. Appearance of waterway (sheen, color, clarity, etc.) 3. Weather conditions (fog, rain, wind, etc.)	Not applicable	Visual Observation	[1]	Background, Event and Post-event Monitoring	Not applicable
Physical	1. Temperature[2]	ºF	Grab[4]	[5]	Background, Event and Post-event Monitoring	[6]
	2. pH[3]	Number				
	3. Turbidity[3]	NTU				
	4. Electric Conductivity[3] @ 25°C	µmhos/cm				
Chemical	1. Active Ingredient[7]	µg/L	Grab[4]	[5]	Background, Event and Post-event Monitoring	[6]
	2. Nonylphenol[8]	µg/L				
	3. Hardness (if copper is monitored)	mg/L				
	4. Dissolved Oxygen[2]	mg/L				

[1] All applications at all sites.
[2] Field testing.
[3] Field or laboratory testing.
[4] Samples shall be collected at three feet below the surface of the water body or at mid water column depth if the depth is less than three feet.
[5] Collect samples from a minimum of six application events for each active ingredient in each environmental setting (flowing water and non-flowing water) per year, except for glyphosate. If there are less than six application events in a year, collect samples during each application event for each active ingredient in each environmental setting (flowing water and non-flowing water). If the results from six consecutive sampling events show concentrations that are less than the receiving water limitation/trigger for an active ingredient in an environmental setting, sampling shall be reduced to one application event per year for that active ingredient in that environmental setting. If the yearly sampling event shows exceedance of the receiving water limitation/trigger for an active ingredient in an environmental setting, then sampling shall return to six application events for that active ingredient in each environmental setting. For glyphosate, collect samples from one application event from each environmental setting (flowing water and non-flowing water) per year.
[6] Pollutants shall be analyzed using the analytical methods described in 40 C.F.R. part 136.
[7] 2,4-D, acrolein, dissolved copper, diquat, endothall, fluridone, glyphosate, imazamox, imazapyr, penoxsulam, and triclopyr.
[8] It is required only when a surfactant is used.

IV. REPORTING REQUIREMENTS

A. General Monitoring and Reporting Requirements

1. The Coalition or Discharger shall comply with all Standard Provisions (Attachment B) related to monitoring, reporting, and recordkeeping.

2. Upon written direction of the State Water Board or the Regional Water Board, the Coalition or Discharger shall submit information as specified.
3. The Coalition or Discharger shall report to the State Water Board and appropriate Regional Water Board any toxic chemical release data that are reported to the State Emergency Response Commission within 15 days of reporting the data to the Commission pursuant to section 313 of the "Emergency Planning and Community Right to Know Act" of 1986 (42 U.S.C. §11001 et. seq.).

B. Annual Information Collection

The Coalition or Discharger shall complete and retain all information on the previous reporting year beginning January 1 and ending December 31. When requested by the Deputy Director or Executive Officer of the applicable Regional Water Board, the Coalition or Discharger shall submit the annual information which must include the following:

1. An executive summary discussing compliance or violation of this General Permit and the effectiveness of the APAP to reduce or prevent the discharge of pollutants associated with algaecide and aquatic herbicide applications;
2. A summary of monitoring data, including the identification of water quality improvements or degradation as a result of the algaecide or aquatic pesticide application, if appropriate, and recommendations for improvements to the APAP [including proposed best management practices (BMPs)] and monitoring program based on the monitoring results. All receiving water monitoring data shall be compared to receiving water limitations and receiving water monitoring triggers;
3. Identification of BMPs currently in use and a discussion of their effectiveness in meeting the requirements in this General Permit;
4. A discussion of BMP modifications addressing violations of this General Permit;
5. A map showing the location of each treatment area;
6. Types and amounts of algaecides and aquatic herbicides used at each application event;*
7. Information on surface area and/or volume of treatment areas and any other information used to calculate dosage, concentration, and quantity of each algaecide and aquatic herbicide used;
8. Sampling results shall indicate the name of the sampling agency or organization, detailed sampling location information (including latitude and longitude or township/range/section if available), detailed map or description of each sampling area (address, cross roads, etc.), collection date, name of constituent/parameter and its concentration detected, minimum levels, method detection limits for each constituent analysis, name or description of water body sampled, and a comparison with applicable water quality standards, description of analytical QA/quality control plan. Sampling results shall be tabulated so that they are readily discernible; and
9. Summary of algaecide and aquatic herbicide application log.

C. Annual Report

The Coalition or Discharger shall submit to the Deputy Director and the appropriate Regional Water Board Executive Officer an annual report consisting of a summary of the past year's activities, and certify compliance with all requirements of this General Permit. If there is no discharge of algaecides and aquatic herbicides, their residues, or their degradation byproducts, the Coalition or Discharger shall provide the Deputy Director and the appropriate Regional Water Board Executive Officer a certification that algaecide and aquatic herbicide application activities did not result in a discharge to any water body. The annual report shall contain the following information:

1. An executive summary discussing compliance or violation of this General Permit and the effectiveness of the APAP; and
2. A summary of monitoring data, including the identification of water quality improvements or degradation as a result of the algaecide or aquatic pesticide application,
3. Dischargers shall submit the annual report according to the following schedule:

Table C-2. Reporting Schedule

Reporting Frequency	Reporting Period	Annual Report Due
Annual	January 1 through December 31	March 1

D. Electronic Reporting

At any time during the term of this General Permit, the State Water Board or the appropriate Regional Water Board may notify the Coalition or Discharger of the requirement to submit electronically Self Monitoring Reports (SMRs) using the State Water Board's California Integrated Water Quality System (CIWQS) Program (http://www.waterboards.ca.gov/ciwqs/index.html). Until such notification is given, the Coalition or Discharger shall submit hardcopy SMRs. The CIWQS website will provide additional directions for SMR submittal in the event there will be service interruption for electronic submittal.

The Coalition or Discharger shall report the results for all monitoring specified in this MRP in the SMR. The Coalition or Discharger shall submit annual SMRs including the results of all required monitoring using U.S. EPA-approved test methods or other test methods specified in this General Permit. If the Coalition or Discharger monitors any pollutant more frequently than required by this General Permit, the results of this monitoring shall be included in the calculations and reporting of the data submitted in the SMR.

E. Reporting Protocols

The Coalition or Discharger shall report with each sample result the applicable reported Minimum Level (ML) and the current Minimum Detection Limit, as determined by the procedure in 40 C.F.R. part 136.

The Coalition or Discharger shall report the results of analytical determinations for the presence of chemical constituents in a sample using the following reporting protocols:

1. Sample results greater than or equal to the reported ML shall be reported as measured by the laboratory (i.e., the measured chemical concentration in the sample).
2. Sample results less than the Report Limit, but greater than or equal to the laboratory's MDL, shall be reported as "Detected, but Not Quantified," or DNQ. The estimated chemical concentration of the sample shall also be reported.

   For the purposes of data collection, the laboratory shall write the estimated chemical concentration next to DNQ as well as the words "Estimated Concentration" (may be shortened to "Est. Conc."). The laboratory may, if such information is available, include numerical estimates of the data quality for the reported result. Numerical estimates of data quality may be percent accuracy (plus a percentage of the reported value), numerical ranges (low to high), or any other means considered appropriate by the laboratory.
3. Sample results less than the laboratory's MDL shall be reported as "<" followed by the MDL.
4. The Coalition or Discharger shall instruct laboratories to establish calibration standards so that the ML value (or its equivalent if there is differential treatment of samples relative to calibration standards) is the lowest calibration standard. At no time is the Coalition or Discharger to use analytical data derived from extrapolation beyond the lowest point of the calibration curve.
5. Multiple Sample Data: If two or more sample results are available, the Coalition or Discharger shall compute the arithmetic mean unless the data set contains one or more reported determinations of DNQ or "Not Detected" (ND). In those cases, the Coalition or Discharger shall compute the median in place of the arithmetic mean in accordance with the following procedure:
   a. The data set shall be ranked from low to high, ranking the reported ND determinations lowest, DNQ determinations next, followed by quantified values (if any). The order of the individual ND or DNQ determinations is unimportant.
   b. The median value of the data set shall be determined. If the data set has an odd number of data points, then the median is the middle value. If the data set has an even number of data points, then the median is the average of the two values around the middle unless one or both of the points are ND or DNQ, in which case the median value shall be the lower of the two data points where DNQ is lower than a value and ND is lower than DNQ.
6. The annual report shall comply with the following requirements:
   a. The Coalition or Discharger shall arrange all reported data in a tabular format. The data shall be summarized to clearly illustrate whether the algaecide and aquatic herbicide applications are conducted in compliance

with effluent and receiving water limitations. The Coalition or Discharger is not required to duplicate the submittal of data that are entered in a tabular format within CIWQS. When electronic submittal of data is required and CIWQS does not provide for entry into a tabular format within the system, the Coalition or Discharger shall submit electronically the data in a tabular format as an attachment.

b. The Coalition or Discharger shall attach a cover letter to the annual report that clearly identifies violations of the permit; discusses corrective actions taken or planned; and provides a time schedule for corrective actions. Identified violations must include a description of the requirement that was violated and a description of the violation.

c. The annual report must be submitted to the State Water Board and the appropriate Regional Water Board, signed and certified as required by the Standard Provisions (Attachment B).

F. Other Reporting Requirements

1. Twenty-Four Hour Report

The Coalition or Discharger shall report to the State Water Board and appropriate Regional Water Board any noncompliance, including any unexpected or unintended effect of an algaecide or aquatic herbicide use that may endanger health or the environment. Any information shall be provided orally within 24 hours from the time the Coalition or Discharger becomes aware of the circumstances and must include the following information:

a. The caller's name and telephone number;

b. Applicator name and mailing address;

c. Waste Discharge Identification (WDID) number;

d. The name and telephone number of a contact person;

e. How and when the Coalition or Discharger become aware of the noncompliance;

f. Description of the location of the noncompliance;

g. Description of the noncompliance identified and the U.S. EPA pesticide registration number for each product the Discharger applied in the area of the noncompliance; and

h. Description of any steps that the Coalition or Discharger has taken or will take to correct, repair, remedy, cleanup, or otherwise address any adverse effects.

If the Coalition or Discharger is unable to notify the State and the appropriate Regional Water Board within 24 hours, the Coalition or Discharger must do so as soon as possible and also provide the rationale for why the Discharger was unable to provide such notification within 24 hours.

2. **Five-Day Written Report**

The Coalition or Discharger shall also provide a written submission within five (5) days of the time the Discharger becomes aware of the noncompliance. The written submission shall contain the following information:

a. Date and time the Coalition or Discharger contacted the State Water Board and the appropriate Regional Water Board notifying of the noncompliance and any instructions received from the State and/or Regional Water Board; information required to be provided in Section D.1 (24-Hour Reporting);

b. A description of the noncompliance and its cause, including exact date and time and species affected, estimated number of individual and approximate size of dead or distressed organisms (other than the pests to be eliminated);

c. Location of incident, including the names of any waters affected and appearance of those waters (sheen, color, clarity, etc);

d. Magnitude and scope of the affected area (e.g. aquatic square area or total stream distance affected);

e. Algaecide and aquatic herbicide application rate, intended use site (e.g., banks, above, or direct to water), method of application, and name of algaecide and herbicide product, description of algaecide and herbicide ingredients, and U.S. EPA registration number;

f. Description of the habitat and the circumstances under which the noncompliance activity occurred (including any available ambient water data for aquatic algaecides and aquatic herbicides applied);

g. Laboratory tests performed, if any, and timing of tests. Provide a summary of the test results within five days after they become available;

h. If applicable, explain why the Coalition or Discharger believes the noncompliance could not have been caused by exposure to the algaecides or aquatic herbicides from the Coalition's or Discharger's application; and

i. Actions to be taken to prevent recurrence of adverse incidents.

The State Water Board staff or Regional Water Board staff may waive the above-required written report under this provision on a case-by-case basis if an oral report has been received within 24 hours.

Attachment D – Fact Sheet

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Attachment D – Fact Sheet

As described in Section III, Findings, of this General Permit, the State Water Resources Control Board (State Water Board) incorporates this Fact Sheet as findings of the State Water Board that support the issuance of this General Permit. This Fact Sheet includes the legal requirements and technical rationale that serve as the basis for the requirements of this General Permit.

This General Permit has been prepared under a standardized format to accommodate a broad range of discharge requirements for Dischargers in California.

I. PERMIT INFORMATION

A. Background

1. The Regulatory Background

In 1972, the Federal Water Pollution Control Act (also referred to as the Clean Water Act or CWA) was amended to provide that the discharge of pollutants to waters of the United States from any point source is effectively prohibited unless the discharge is in compliance with a National Pollutant Discharge Elimination System (NPDES) Permit.

On September 22, 1989, the U.S. Environmental Protection Agency (U.S. EPA) granted the State of California, through the State Water Resources Control Board (State Water Board) and the Regional Water Quality Control Boards (Regional Water Boards), the authority to issue general NPDES permits pursuant to title 40 Code of Federal Regulations (40 C.F.R.) 122 and 123.

Section 122.28 of 40 C.F.R. provides for issuance of general permits to regulate a category of point sources if the sources involve the same or substantially similar types of operations; discharge the same type of waste; require the same type of effluent limitations or operating conditions; require similar monitoring; and are more appropriately regulated under a general permit rather than individual permits.

On March 12, 2001, the Ninth Circuit Court of Appeals held that discharges of pollutants from the use of aquatic pesticides in waters of the United States require coverage under an NPDES permit. (*Headwaters, Inc. v. Talent Irrigation District).*[3] The *Talent* decision was issued just prior to the major season for applying aquatic pesticides.

Because of the serious public health, safety, and economic implications of delaying pesticide applications, in 2001 the State Water Board adopted Water Quality Order (Order) No. 2001-12-DWQ, Statewide General NPDES Permit for

[3] 243 F.3d 526 (9th Cir., 2001).

Discharges of Aquatic Pesticides to Waters of the United States on an emergency basis to provide immediate NPDES permit coverage for broad categories of aquatic pesticide use in California.

Order No. 2001-12-DWQ imposed requirements on any discharge of aquatic pesticides by public entities to waters of the United States in accordance with the Policy which establishes procedures for implementing water quality standards for priority pollutants* in NPDES permits.

Section 5.3 of the State Water Board Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California (Policy) allows for short-term or seasonal exceptions from its requirements for resource or pest management conducted by public entities or mutual water companies. In order to qualify for an exception from meeting priority pollutant standards, a public entity must fulfill the requirements listed in section 5.3 and the State Water Board must decide to grant the exception. Among other requirements, entities seeking an exception to complying with water quality standards for priority pollutants must submit documents in compliance with California Environmental Quality Act (CEQA).[4] Because of the emergency adoption of Order No. 2001-12-DWQ, the State Water Board invoked an exemption to the requirements of section 5.3 of the Policy and issued the permit incorporating a categorical exception to water quality standards for priority pollutants.

Order No. 2001-12-DWQ required that Dischargers develop a best management practices (BMPs) plan that minimizes adverse impacts to receiving waters and a monitoring and reporting plan that is representative of each type of aquatic pesticide application.

In August 2001, Waterkeepers Northern California (Waterkeepers) filed a lawsuit against the State Water Board challenging several aspects of Order No. 2001-12-DWQ. Major aspects of the challenge included the emergency adoption of the Order without compliance with CEQA and other exception requirements of the Policy; failure to address cumulative impacts; and failure to comply with the California Toxics Rule (CTR).[5]

In a settlement of the Waterkeepers' lawsuit, the State Water Board agreed to fund a comprehensive aquatic pesticide monitoring program that would assess receiving water toxicity caused by aquatic pesticides and alternatives for pesticide use. The State Water Board contracted with the San Francisco Estuary Institute (SFEI) to conduct the program. SFEI published the final report on February 5, 2004.

In November 2002, the Ninth Circuit issued another opinion concerning the need for an NPDES permit for pesticide application. (*League of Wilderness Defenders*

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[4] Cal. Pub. Resources Code § 21000 et. seq.
[5] 40 C.F.R. Section 131.38.

v. Forsgren.[6]) In this case, the court held that the USDA Forest Service must obtain an NPDES permit before it sprays insecticides* from an aircraft directly into or over rivers as part of silviculture activities. The court found that the insecticides are pollutants under the CWA. The court also defined the exemption for silvicultural pest control from the definition of "point source" in U.S. EPA's regulations to be limited to pest control activities from which there is natural runoff.

Also in 2002, the Second Circuit issued an unpublished decision regarding the need for an NPDES permit for application of pesticides for mosquito control in federal wetland areas. (*Altman v. Town of Amherst*.) The lower court had dismissed a citizens' suit, holding that pesticides, when used for their intended purpose, do not constitute a "pollutant" for purposes of the CWA, and are more appropriately regulated under Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA). The appeals court vacated the trial court's decision and remanded the matter. In its unpublished decision, the Second Circuit expressed concern that: "[u]ntil the EPA articulates a clear interpretation of current law - among other things, whether properly used pesticides released into or over waters of the United States can trigger the requirements for NPDES permits - the question of whether properly used pesticides can become pollutants that violate the [Clean Water Act] will remain open."

Order No. 2001-12-DWQ expired on January 31, 2004. In 2004, it was replaced by two general permits: a vector control permit for larvicides (Order No. 2004-0008-DWQ) and a weed control permit (Order No. 2004-0009-DWQ). The State Water Board determined that adoption of these two permits was consistent with the Ninth Circuit decisions.

In 2005, the Ninth Circuit held that a pesticide that is applied consistent with FIFRA is not a "chemical waste" (*Fairhurst v. Hagener),*[7] but also stated that it would not change its decision in *Headwaters.* The court stated that whether an NPDES permit was required depends on whether there was any "residue or unintended effect" from application of the pesticide. In *Fairhurst*, the court found neither residue nor unintended effect was present. Therefore, the pesticide application at issue did not require an NPDES permit.

U.S. EPA's Final Rule: On November 20, 2006, U.S. EPA adopted a final regulation providing that NPDES permits are not required for pesticide applications as long as the Discharger follows FIFRA label instructions. According to the regulation, pesticides applied under the following two circumstances are not pollutants and, therefore, are not subject to NPDES permitting requirements:

a. The application of pesticides directly to waters of the United States in order to control pests. Examples of such applications include applications to control

[6] 309 F.3d 1181 (9th Cir., 2002).
[7] 422 F.3d 1146 (9th Cir., 2005).

mosquito larvae, aquatic weeds, or other pests that are present in waters of the United States; and

b. The application of pesticides to control pests that are present over waters of the United States, including near such waters, where a portion of the pesticides will unavoidably be deposited to waters of the United States in order to target the pests effectively; for example, when insecticides are aerially applied to a forest canopy where waters of the United States may be present below the canopy or when pesticides are applied over or near water for control of adult mosquitoes or other pests.

Lawsuits Against U.S. EPA's Final Rule: After U.S. EPA's new regulation was adopted in 2006, lawsuits were filed by both the pesticide industry and environmental groups in 11 of the 13 Circuits, including the Ninth Circuit Court, challenging U.S. EPA's Final Rule.

The National Cotton Council of America v. U.S. EPA:[8] The petitions for review were consolidated in the Sixth Circuit Court by an order of the Judicial Panel on Multidistrict Litigation.

On January 11, 2009, the Sixth Circuit Court of Appeals determined that U.S. EPA's Final Rule is not a reasonable interpretation of the CWA and vacated the Final Rule. U.S. EPA did not request reconsideration of the decision, but did file a motion for a two-year stay of the effect of the decision in order to provide agencies time to develop, propose, and issue NPDES general permits for pesticide applications covered by the ruling. On June 8, 2009, the Sixth Circuit granted the motion, such that the U.S. EPA exemption was to remain in place until April 9, 2011. Subsequently, U.S. EPA was granted an extension of the stay, which allowed the exemption to continue until October 31, 2011.

2. **Related Pesticide Regulation Information**

Pesticide formulations may include "active ingredients" and "inert ingredients." Adjuvants or surfactants may be added to the ingredients in the application equipment that is used in the delivery of the aquatic pesticide.

As part of the registration process of pesticides for use in California, U.S. EPA and the California Department of Pesticide Regulation (DPR) evaluate data submitted by registrants to ensure that a product used according to label instructions will cause no harm or adverse impact on non-target organisms that cannot be reduced or mitigated with protective measures or use restrictions. Registrants are required to submit data on the effects of pesticides on target pests (efficacy) as well as non-target effects. Data on non-target effects include plant effects (phytotoxicity), fish and wildlife hazards (ecotoxicity), impacts on endangered species, effects on the environment, environmental fate, degradation byproducts, leachability, and persistence. Requirements that are specific to use in California are included in many pesticide labels that are approved by U.S. EPA.

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[8] 553 F.3d 927 (6th Cir., 2009).

Use must be reported to the County Agricultural Commissioner where required by law or by agreement with DPR.

The CWA, at section 301(a), broadly prohibits the discharge of any pollutant to waters of the United States, except in compliance with an NPDES permit. Since FIFRA is not necessarily as protective of water quality as the CWA, pesticides discharged into surface waters may constitute pollutants within the meaning of the CWA even if the discharge is in compliance with the registration requirements of FIFRA, thus, requiring coverage under a valid NPDES permit.

DPR and the County Agricultural Commissioners regulate the sale and use of pesticides in California. Pesticide applications subject to this General Permit must be consistent with permits issued by County Agricultural Commissioners and the pesticide label instructions approved by U.S. EPA under FIFRA. According to federal law, pesticide label language is under the sole jurisdiction of U.S. EPA. Label language and any changes thereto must be approved by U.S. EPA before the product can be sold in this country. DPR cannot require manufacturers to make changes on labels; however, DPR can refuse to register products unless manufacturers address unmitigated hazards by amending the pesticide label.

State regulations require that the County Agricultural Commissioners determine if a substantial adverse environmental impact will result from the proposed use of a restricted material. If the County Agricultural Commissioner determines that this is likely, the commissioner may deny the restricted pesticide use permit or may issue it under the condition that site-specific use practices be followed (beyond the label and applicable regulations) to mitigate potentially adverse effects. DPR conducts scientific evaluations of potential health and environmental impacts and provides commissioners with information in the form of suggested permit conditions. DPR's suggested permit conditions reflect minimum measures necessary to protect people and the environment. County Agricultural Commissioners use this information and its evaluation of local conditions to set site-specific limits in permits.

B. General Criteria

1. This General Permit serves as a general NPDES Permit for the discharge of residual algaecides and aquatic herbicides to surface waters as a result of algaecides and aquatic herbicides applications for algae and aquatic weed controls.
2. Dischargers who submit a complete application under this General Permit are not required to submit an individual permit application. The State Water Board's Deputy Director of the Division of Water Quality (Deputy Director) may request additional information or determine that a Discharger is not eligible for coverage under this General Permit and would be better regulated under an individual permit or other general NPDES permit adopted by the appropriate Regional Water Board. If the discharge becomes covered by an individual or another general permit, the applicability of this General Permit to the specified discharge

will be immediately terminated on the effective date of the individual permit or coverage under the other general permit.

II. NOTIFICATION REQUIREMENTS

A. General Permit Application

To obtain authorization under this General Permit, Dischargers must submit to the State Water Board a complete application at least 90 days prior to their first application of the season. This is to allow posting of the Aquatic Pesticide Application Plan (APAP) for a 30-day comment period, staff to review APAP and respond to comments, and the Deputy Director to issue the Notice of Applicability (NOA). Following are the application information requirements:

1. A Notice of Intent (NOI shown as Attachment E) signed in accordance with the signatory requirements of the Standard Provisions in Attachment B;
2. An application fee. A fee is required only for new Dischargers. Dischargers that are enrolled under Order No. 2004-0009-DWQ and are applying for coverage under this Permit will be billed during the regular billing cycle; and
3. An APAP.

State Water Board staff will post the APAP on the State Water Board's website for 30 days for public review. In the meantime, the State and Regional Water Board staff will review the application package for completeness and applicability to this General Permit. After the application has been deemed complete, the Deputy Director will issue an NOA. The NOA will specify the permitted active ingredients of algaecides and aquatic herbicides that may be used, and any Regional Water Board specific conditions and requirements not stated in this General Permit. Any such region-specific conditions and requirements shall be enforceable. The Discharger is authorized to discharge starting on the date of the NOA. If comments are received, staff will immediately work to resolve them in order to issue an NOA within 90 days of receipt of the application.

This General Permit specifices an effective date of December 1, 2013. The effective date is delayed because, with the impending start of the 2013 application season, Dischargers may be unable to comply with the requirement to submit their applications 90 days prior to their first pesticide application.The delay will allow enrollees under Water Quality Order No. 2004-0009-DWQ to have continued permit coverage throughout the 2013 application season while preparing their new application for coverage under this General Permit; new enrollees to prepare and submit their applications as well; and Water Boards' staff to process the applications and issue NOAs.

Alternatively, the Deputy Director may issue a Notice of Exclusion**,** which either terminates permit coverage or requires submittal of an application for an individual permit or alternative general permit.

B. Fee

The annual fee for enrollment under this General Permit, shall be based on Category 3 in section 2200(b)(9) of title 23, California Code of Regulations (Cal. Code Regs.). This category is appropriate because algaecide and aquatic herbicide applications incorporate BMPs to control potential impacts to beneficial uses, and this General Permit prohibits pollutant discharge associated with algaecide and aquatic herbicide applications from causing exceedance of CTR criteria or water quality objectives. Information concerning the applicable fees can be found at http://www.waterboards.ca.gov/resources/fees/docs/fy1112fee_schdl_npdes_prmt.pdf

C. Public Notification

The State Water Board has notified interested agencies and persons of its intent to prescribe waste discharge requirements in this General Permit and provided them with an opportunity to submit their written comments and recommendations.

III. DISCHARGE DESCRIPTION

This General Permit covers the point source discharge to waters of the United States of pesticide residues resulting from applications using products containing 2,4-D, acrolein, copper, diquat, endothall, fluridone, glyphosate, imazamox, imazapyr, penoxsulam, sodium carbonate peroxyhydrate, and triclopyr-based algaecides and aquatic herbicides, and adjuvants containing ingredients represented by the surrogate nonylphenol. This General Permit covers only discharges of algaecides, aquatic herbicides, and adjuvants that are currently registered for use in California, or that become registered for use and contain the above-listed active ingredients and ingredients represented by the surrogate of nonylphenol.

A. Existing Discharge Description

As of January 11, 2013, there were 153 active enrollees under Water Quality Order No. 2004-0009-DWQ, Statewide General National Pollutant Discharge Elimination System Permit for the Discharge of Aquatic Pesticides for Aquatic Weed Control in Waters of the United States, General Permit No. CAG990005 (Order No. 2004-0009-DWQ). Most of the enrollees are local public agencies such as cities and irrigation, flood control, or reclamation districts. The other enrollees include six state of California agencies: the Departments of Boating and Waterways, Fish and Wildlife, Food and Agriculture, Parks and Recreation, Transportation, and Water Resources; a federal agency, U.S. Department of Fish and Wildlife Service; and a few private entities such as home owner associations and mobile home park owners.

The State Water Board granted exceptions to public agencies and mutual water companies that met the criteria stated in section 5.3 of the Policy for short-term or seasonal exceptions from meeting the receiving water limitations for priority pollutants of acrolein and copper.

Order No. 2004-0009-DWQ permits the discharge of aquatic pesticides with the following active ingredients: 2,4-D, acrolein, copper, diquat, endothall, fluridone, glyphosate, and triclopyr. The State Water Board reopened Order No. 2004-0009-DWQ after its adoption to add two more active ingredients: (1) imazapyr, a non-selective herbicide, for control of cordgrass and broadleaf weeds and other emergent aquatic species; and (2) sodium carbonate peroxyhydrate as an alternative to copper for algae control.*

B. Annual Report Review

State Water Board staff reviewed annual reports from 2004 through 2008[9] submitted under Order No. 2004-0009-DWQ. The data are summarized in Table D-1 below. As shown in Table D-1, all constituent concentrations from post-event application samples were below receiving water limitations except for the following: three exceedances each for acrolein and glyphosate and 82 exceedances for copper out of 288 monitoring events. For glyphosate, it is likely that the three exceedances were not the result of aquatic pesticide applications because the pre-application samples also showed exceedances and the remaining 151 sampling events showed no exceedance. For copper, 43 of the 82 exceedances were from public agencies or mutual water companies that were excepted from meeting priority pollutant limitations during the exception period. Thus, staff did not consider these exceedances as violations of the receiving water limitations. However, 39 of the exceedances were from entities that did not have a Policy exception. Therefore, staff considered these exceedances as true violations of the receiving water limitations.

Table D-1. Monitoring Data Summary, 2004-2008, Order No. 2004-0009-DWQ

Pollutant	Number of Samples	Number of Exceedance
2,4-D	3	0
Acrolein	213	3
Copper	288	85
Diquat	17	0
Endothall	6	0
Fluridone	12	0
Glyphosate	154	3
Nonylphenol	53	0

Under Order No. 2004-0009-DWQ, the most commonly used aquatic pesticide products contained copper, acrolein, and glyphosate in descending order.

[9] The data are submitted to the Regional Water Boards per Order No. 2004-0009-DWQ. When State Water Board staff started collecting data from the Regional Water Boards, the data available covered only this period.

C. Receiving Water Description

The annual reports showed that most algae and aquatic weed control applications were performed in fresh inland surface waters such as lakes, ponds, flood control and drainage channels, or canals. Some applications were performed in coastal waters, marina lagoons, and slough with brackish water.

IV. APPLICABLE PLANS, POLICIES, AND REGULATIONS

The requirements contained in this General Permit are based on the applicable plans, policies, and regulations identified below.

A. Legal Authorities

This General Permit is issued pursuant to section 402 of the federal Clean Water Act (CWA) and implementing regulations adopted by the U.S. Environmental Protection Agency (U.S. EPA) and chapter 5.5, division 7 of the California Water Code, commencing with section 13370. It shall serve as an NPDES permit for point source discharges of residual algaecides and aquatic herbicides to surface waters. This General Permit also serves as WDRs pursuant to article 4, chapter 4, division 7 of the California Water Code (commencing with §13260).

This General Permit shall serve as a General NPDES permit for point source discharges of residues from algaecides and aquatic herbicide applications for algae and aquatic weed control. This General Permit also serves as general Waste Discharge Requirements pursuant to article 4, chapter 4, and division 7 of the California Water Code (commencing with §13260).

B. California Environmental Quality Act (CEQA)

Pursuant to California Water Code section 13389, State and Regional Water Boards are exempt from the requirement to comply with Chapter 3, Division 13 of the Public Resources Code when adopting NPDES permits.

C. State and Federal Regulations, Policies, and Plans

1. Water Quality Control Plans (Basin Plans)

The Regional Water Boards have adopted Basin Plans that designate beneficial uses, establish water quality objectives, and contain implementation programs and policies to achieve those objectives for all waters addressed through the plans. In addition, the Basin Plans implement State Water Board Resolution No. 88-63, which established state policy that all waters, with certain exceptions, should be considered suitable or potentially suitable for municipal or domestic supply. The Basin Plans identify typical beneficial uses as follows: municipal and domestic supply, agricultural irrigation, stock watering, process supply, service supply, hydropower supply, water contact recreation, canoeing and rafting recreation, other non-contact water recreation,* warm freshwater aquatic habitat, cold freshwater habitat,* warm fish migration habitat, cold fish migration habitat,

warm and cold spawning habitat, wildlife habitat, navigation, rare, threatened, or endangered species habitat, groundwater recharge,* and freshwater replenishment.

Requirements of this General Permit implement provisions contained in the applicable Basin Plans.

2. **National Toxics Rule (NTR) and California Toxics Rule (CTR)**

U.S. EPA adopted the NTR on December 22, 1992, and later amended it on May 4, 1995 and November 9, 1999. About 40 criteria in the NTR applied in California. On May 18, 2000, U.S. EPA adopted the CTR. The CTR promulgated new toxics criteria for California and, in addition, incorporated the previously adopted NTR criteria that were applicable in the state. The CTR was amended on February 13, 2001. These rules contain water quality criteria for priority pollutants.

3. **State Implementation Policy (Policy)**

On March 2, 2000, the State Water Board adopted the *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California* (Policy). The Policy became effective on April 28, 2000 with respect to the priority pollutant criteria promulgated for California by U.S. EPA through the NTR and to the priority pollutant objectives established by the Regional Water Board in the Basin Plans. The Policy became effective on May 18, 2000 with respect to the priority pollutant criteria promulgated by U.S. EPA through the CTR. The State Water Board adopted amendments to the Policy on February 24, 2005 that became effective on July 13, 2005. The Policy establishes implementation provisions for priority pollutant criteria and objectives and provisions for chronic toxicity control. Requirements of this General Permit implement the Policy.

Policy Exception

The Policy provides categorical exceptions allowing short-term or seasonal exceptions from meeting the priority pollutant criteria/objectives if it is determined to be necessary to implement control measures for resource or pest management conducted by public entities or mutual water companies to fulfill statutory requirements. The Policy specifically refers to vector or weed control, pest eradication, or fishery management as the basis for categorical exceptions. The exceptions are only granted to public entities or mutual water companies that have adequately provided the following information as required by the Policy:

a. A detailed description of the proposed action which includes the proposed method of completing the action;

c. A time schedule;

d. A discharge and receiving water monitoring plan that specifies monitoring prior to application events,* during application events, and after completion with the appropriate quality control procedures;

e. CEQA documentation including notifying potentially affected public and government agencies; and

f. Any necessary contingency plans.

The public entities and mutual water companies listed in Attachment G have met the above requirements before the issuance or during the term of the Order No. 2004-0009-DWQ.

The final Negative Declaration or Mitigated Negative Declarations (ND/MND) prepared by the public entities or mutual water companies have determined that the water quality impacts identified in the environmental assessments of the ND/MND from algaecide and aquatic herbicide applications are less than significant, and would not have a significant effect on the environment. The boards of each public entity and mutual water company*, as the lead agencies under CEQA, approved the final ND/MND. Therefore, each public entity or mutual water company is not required to meet priority pollutant criteria during the exception period.

During the issuance of the Order No. 2004-0009-DWQ, as required in section 15096 of the CEQA Guidelines, the State Water Board, as a Responsible Agency under CEQA, considered the ND/MND approved by the board of each public entity or mutual water company. The State Water Board found that the projects will have less than significant water quality impact if the Dischargers meet the requirements in this General Permit. Accordingly, the Policy 5.3 exception granted previously will continue to be valid under this Order.

Any Discharger not listed in Attachment G is required to meet all applicable priority pollutant criteria for receiving waters.

4. **Antidegradation Policy**

Section 131.12 of 40 C.F.R. requires that the state water quality standards include an antidegradation policy consistent with the federal policy. The State Water Board established California's antidegradation policy in State Water Board Resolution No. 68-16. Resolution No. 68-16 incorporates the federal antidegradation policy where the federal policy applies under federal law. Resolution No. 68-16 requires that existing water quality be maintained unless degradation is justified based on specific findings. The Basin Plans implement, and incorporate by reference, both the state and federal antidegradation policies.

The permitted discharge must be consistent with the antidegradation provision of 40 C.F.R. section 131.12 and Resolution No. 68-16. The conditions of this General Permit require residual algaecide and aquatic herbicide discharges to meet applicable water quality objectives. Specifically, the General Permit sets receiving water limitations for 2,4-D, acrolein, copper, diquat, endothall, fluridone glyphosate, and nonylphenol. It also sets receiving water monitoring triggers for imazapyr and triclopyr triethylamine (TEA).

The BMPs and other controls required pursuant to the General Permit constitute Best Available Technology Economically Achievable (BAT) and Best Conventional Pollutant Control Technology (BCT).

The General Permit requirements are protective of the broad range of beneficial uses set forth in basin plans throughout the state, constituting best control available consistent with the purposes of the algaecide and aquatic herbicide application in order to ensure that pollution or nuisance will not occur. The nature of pesticides is to be toxic in order to protect beneficial uses such as human health or long-term viability of aquatic life. For example, blue-green algae are bacteria that live in both fresh and marine waters. In California, certain forms of blue-green algae have been a particular problem in the Klamath River watershed and on the Central Coast. Blooms of these bacteria can poison livestock, wildlife, and humans; they can also damage drinking water sources. The use of an algaecide is one of the effective ways to control the harmful blooms of blue-green algae. Although algaecide application will temporarily degrade the water quality and result in short-term toxicity in the receiving water, it prevents the toxicities in the entire water body for a long period of time. While surface waters may be temporarily degraded; water quality standards and objectives will not be exceeded after project completion.

Another example of benefits of pesticide application is the control of aquatic weeds in flood control channels. Aquatic herbicides used to control emerging aquatic weeds in a flood control channel will effectively prevent full growth and bloom of aquatic weeds that may block the channel and cause flooding in the surrounding communities. Although the water quality is temporarily degraded while the herbicide is taking its effect in eliminating the weeds, the water quality will not be exceeded after the project is completed. In addition, the receiving water limitations and other requirements of this General Permit will ensure maintenance of the highest water quality consistent with maximum benefit to the people of the state.

Given the nature of a General Permit and the broad range of beneficial uses to be protected across the state, data analysis of specific water bodies is infeasible. While surface waters may be temporarily degraded, water quality standards and objectives will not be exceeded. The nature of pesticides is to be toxic in order to protect human health and water resources. However, compliance with receiving water limitations is required. Therefore, this General Permit is consistent with state and federal antidegradation policies.

5. **Endangered Species Act**

This General Permit does not authorize any act that results in the taking of a threatened or endangered species or any act that is now prohibited, or becomes prohibited in the future, under either the California Endangered Species Act (Fish and Game Code §2050 et. seq) or the Federal Endangered Species Act (16 U.S.C.A. §1531 et. seq). This General Permit requires compliance with effluent limitations, receiving water limitations, and other requirements to protect the beneficial uses of waters of the state. The Discharger is responsible for meeting all requirements of the applicable Endangered Species Act.

6. **Impaired Water Bodies on CWA 303(d) List**

   This General Permit does not authorize the discharge of residual algaecides and aquatic herbicides and their degradation byproducts to waters of the United States that are impaired by the same active ingredients and their degradation byproducts. The links to California's impaired waters bodies are provided at http://www.waterboards.ca.gov/water_issues/programs/tmdl/integrated2010.shtm.

7. **Other Plans, Policies, and Regulations**

   The State Water Board adopted the *Water Quality Control Policy for the Enclosed Bays and Estuaries of California*. The requirements within this General Permit are consistent with the policy.

V. RATIONALE FOR EFFLUENT LIMITATIONS AND DISCHARGE SPECIFICATIONS

Effluent limitations and toxic and pretreatment effluent standards established pursuant to sections 301 (Effluent Limitations), 302 (Water Quality Related Effluent Limitations), 304 (Information and Guidelines), and 307 (Toxic and Pretreatment Effluent Standards) of the CWA and amendments thereto are applicable to the discharge.

The control of pollutants discharged is established through effluent limitations and other requirements in NPDES permits. There are two principal bases for effluent limitations: (1) 40 C.F.R. section 122.44(a) requires that permits include applicable technology-based limitations and standards; and (2) 40 C.F.R. section 122.44(d) requires that permits include water quality-based effluent limitations to attain and maintain applicable numeric and narrative water quality criteria to protect the beneficial uses of the receiving water where numeric water quality objectives have not been established.

The CWA mandates the implementation of effluent limitations that are as stringent as necessary to meet water quality standards established pursuant to state or federal law (33 U.S.C., §1311(b)(1)(C); 40 C.F.R. §122.44(d)(1)). NPDES permits must incorporate discharge limits necessary to ensure that water quality standards are met. This requirement applies to narrative criteria as well as to numeric criteria specifying maximum amounts of particular pollutants. Pursuant to 40 C.F.R. section 122.44(d)(1)(i), NPDES permits must contain limits that control all pollutants that "*are or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any state water quality standard, including state narrative criteria for water quality*." Section 122.44(d)(1)(vi) of 40 C.F.R. further provides that "[w]*here a state has not established a water quality criterion for a specific chemical pollutant that is present in an effluent at a concentration that causes, has the reasonable potential to cause, or contributes to an excursion above a narrative criterion within an applicable State water quality standard, the permitting authority must establish effluent limits.*"

The CWA requires point source dischargers to control the amount of conventional, non-conventional, and toxic pollutants that are discharged into the waters of the United States. The control of pollutants discharged is established through effluent limitations and other requirements in NPDES permits. There are two principal bases for effluent limitations: 40 C.F.R. section 122.44(a) requires that permits include applicable technology-based

limitations and standards; and section 122.44(d) requires that permits include water quality-based effluent limitations to attain and maintain applicable numeric and narrative water quality criteria to protect the beneficial uses of the receiving water where numeric water quality objectives have not been established.

With respect to narrative objectives, the State Water Board must establish effluent limitations using one or more of three specified sources: (1) U.S. EPA's published water quality criteria; (2) a proposed state criterion (i.e., water quality objective) or an explicit state policy interpreting its narrative water quality criteria; or (3) an indicator parameter (i.e., 40 C.F.R. §122.44(d)(1)(vi)(A), (B) or (C)). Basin Plans contain a narrative objective requiring that: "*All waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life.*" Basin Plans require the application of the most stringent objective necessary to ensure that surface water and groundwater do not contain chemical constituents, discoloration, toxic substances, radionuclides, or taste and odor producing substances that adversely affect beneficial uses. Basin Plans state that material and relevant information, including numeric criteria, and recommendations from other agencies and scientific literature will be utilized in evaluating compliance with the narrative toxicity objective. Basin Plans also limit chemical constituents in concentrations that adversely affect surface water beneficial uses. Basin Plans further state that, to protect all beneficial uses, the Regional Water Board may apply limits more stringent than MCLs.

A. Discharge Prohibitions

1. The discharge of residual algaecides, residual aquatic herbicides, and their degradation byproducts in a manner different from that described in this General Permit is prohibited.

   This prohibition is based on 40 C.F.R. 122.21(a), "Duty to Apply," and California Water Code section 13260, which requires filing a Report of Waste Discharge before discharges can occur. Discharges not described in the NOI, and subsequently not discharged in the manner permitted by this General Permit, are prohibited.

2. The discharge of residual algaecides, residual aquatic herbicides, and their degradation byproducts shall not create a nuisance as defined in section 13050 of the California Water Code.

   This prohibition is based on California Water Code section 13050 for water quality control for achieving water quality objectives.

3. The discharge shall not cause, have a reasonable potential to cause, or contribute to an in-stream excursion above any applicable standard or criterion promulgated by U.S. EPA pursuant to section 303 of the CWA, or water quality objective adopted by the State or Regional Water Boards.

   This prohibition is based on CWA section 301 and California Water Code.

4. All pesticides are prohibited from the waters of the Lahontan Region (Region 6). The use of this permit is invalid in the Lahontan Region unless the discharger has

requested a prohibition exemption from the Lahontan Water Board and the Lahontan Water Board has granted an exemption for the use of algaecides or aquatic herbicides.

This prohibition is based on the Lahontan Water Board's region-wide waste discharge prohibition for pesticides in water with exemption criteria to allow certain uses of aquatic pesticides.

B. Effluent Limitations

1. Technology-Based Effluent Limitations

The intent of technology-based effluent limitations in NPDES permits is to require a minimum level of treatment of pollutants based on available treatment technologies while allowing the Discharger to use any available control technique to meet the limitations. For industrial and other non-municipal facilities, technology-based effluent limitations are derived by using: (1) national effluent limitations guidelines and standards established by U.S. EPA; or best professional judgment on a case-by-case basis in the absence of national effluent limitations guidelines and standards. In the case of pesticide applications, U.S. EPA has not developed guidelines and standards other than the requirement to follow the labels when applying pesticides. At this point, it is not appropriate to establish technology-based effluent limitations other than following the label when applying algaecides and aquatic herbicides.

Therefore, the effluent limitations contained in this General Permit are narrative and include requirements to develop and implement an APAP that describes appropriate BMPs, including compliance with all algaecide and aquatic herbicide label instructions, and to comply with numeric receiving water limitations and actions required if monitoring triggers are exceeded.

The BMPs required herein constitute BAT and BCT and will be implemented to minimize the area and duration of impacts caused by the discharge of algaecides and aquatic herbicides in the treatment area and to allow for restoration of water quality and protection of beneficial uses of the receiving waters to pre-application quality following completion of an application event.* In addition, for those enrollees that have been granted an exception to meeting receiving water limitations for acrolein and copper, in accordance with the Policy, this General Permit requires that upon completion of a pesticide application project, the Discharger shall provide certification by a qualified biologist that the receiving water beneficial uses have been restored.

The development of BMPs provides the flexibility necessary to establish controls to minimize the area extent and duration of impacts caused by the discharge of algaecides and aquatic herbicides. This flexibility allows Dischargers to implement appropriate BMPs for different types of applications and different types of waters.

Much of the BMP development has been incorporated into the algaecide and aquatic herbicide regulation process by U.S. EPA, DPR, and County Agricultural

Commissioners. The Dischargers must be licensed by DPR if such licensing is required for the algaecide and aquatic herbicide application project. The algaecide and aquatic herbicide use must be consistent with the algaecide and aquatic herbicide label instructions and any Restricted Material Use Permits issued by County Agricultural Commissioners.

U.S. EPA and DPR scientists review algaecide and aquatic herbicide labels to ensure that a product used according to label instructions will cause no harm (or "adverse impact") on non-target organisms that cannot be reduced (or "mitigated") with protective measures or use restrictions. Many of the label directions constitute BMPs to protect water quality and beneficial uses. Label directions may include: precautionary statements regarding toxicity and environmental hazards; directions for proper handling, dosage, application, and disposal practices; prohibited activities; spill prevention and response measures; and restrictions on type of water body and flow conditions.

A Restricted Material Use Permit issued by the County Agricultural Commissioner incorporates applicable suggested permit conditions from DPR and local site-specific conditions necessary to protect the environment. State regulations require that specific types of information be provided in an application to the County Agricultural Commissioners for a Restricted Material Use Permit. The County Agricultural Commissioners review the application to ensure that appropriate alternatives were considered and that any potential adverse effects are mitigated. The County Agricultural Commissioners also conduct pre-project inspections on at least five percent of projects.

This General Permit requires that Dischargers use BMPs when implementing control programs in order to mitigate effects to water quality resulting from algaecide and aquatic herbicide applications. Dischargers are required to consider alternative control measures to determine if there are feasible alternatives to the selected algaecide and aquatic herbicide application project that could reduce potential water quality impacts. If the Discharger identifies alternative control measures to the selected algaecide and aquatic herbicide application project that could reduce potential water quality impacts and that are also feasible, practicable, and cost-effective, the Discharger shall implement the identified alternative measures. The selection of control measures that use non-toxic and less toxic alternatives is an example of an effective BMP.

2. **Water Quality-Based Effluent Limitations (WQBELs)**

a. **Scope and Authority**

Section 122.44(d)(1)(i) of 40 C.F.R. mandates that permits include effluent limitations for all pollutants that are or may be discharged at levels that have the reasonable potential to cause or contribute to an exceedance of a water quality standard, including numeric and narrative objectives within a standard. Where reasonable potential has been established for a pollutant, but there is no numeric criterion or objective for the pollutant, WQBELs must be established using: (1) U.S. EPA criteria under CWA section 304(a), supplemented where necessary by other relevant information; (2) an

indicator parameter for the pollutant of concern; or (3) a calculated numeric water quality criterion, such as a proposed state criterion or policy interpreting the state's narrative criterion, supplemented with other relevant information, as provided in 40 C.F.R. section 122.44(d)(1)(vi).

The process for determining reasonable potential and calculating WQBELs when necessary is intended to protect the designated uses of the receiving water as specified in the Basin Plans, and achieve applicable water quality objectives and criteria that are contained in other state plans and policies, or any applicable water quality criteria contained in the CTR and NTR.

Section 122.44(k)(3) of 40 C.F.R. allows the use of other requirements such as BMPs in lieu of numeric effluent limits if the latter are infeasible. It is infeasible for the State Water Board to establish numeric effluent limitations in this General Permit because:

i. The application of algaecides and aquatic herbicides is not necessarily considered a discharge of pollutants according to the *National Cotton Council of America v. U.S. EPA*[10] and other applicable case law. The Sixth Circuit Court of Appeals ruled that residual pesticides associated with the application of pesticides at, over, or near water constitute pollutants within the meaning of the CWA and that the discharge must be regulated under an NPDES permit;

ii. This General Permit regulates the discharge of residual algaecides and aquatic herbicides used for algae and aquatic weed control to waters of the United States. These are algaecides and herbicides with registration labels that explicitly allow direct application to water bodies. In algaecides and aquatic herbicides applications to control pests, any algaecides and aquatic herbicides residue or degradation byproduct that is deposited in waters of the United States is a pollutant. However, at what point the algaecides and aquatic herbicides become a residue is not precisely known and varies depending on the type of algaecides and aquatic herbicides, application method and quantity, water chemistry, etc. Therefore, in the application of algaecides and aquatic herbicides, the exact effluent is unknown;

iii. It would be impractical to provide effective treatment of the algaecides and aquatic herbicides residue to protect water quality, given typically, algaecides and aquatic herbicides applications consist of numerous short duration intermittent algaecides and aquatic herbicides residue releases to surface waters from many different locations; and

iv. Treatment may render the algaecides and aquatic herbicides useless for algae and aquatic weed control.

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[10] 553 F.3d 927 (6th Cir., 2009)

Therefore, as stated in Technology-Based Effluent Limitations, Section V.B.1 above, the effluent limitations contained in this General Permit are narrative and include requirements to develop and implement an APAP that describes appropriate BMPs, including compliance with all algaecides and aquatic herbicides label instructions, and to comply with narrative receiving water limitations and triggers.

b. **Receiving Water Beneficial Uses**

Algaecide and aquatic herbicide applications for algae and aquatic weed control may potentially deposit residual algaecides and aquatic herbicides to surface waters. Beneficial uses of receiving waters are as follows: municipal and domestic supply, agricultural irrigation, agricultural stock watering, process water supply, service water supply, and hydropower supply, water contact recreation, canoeing and rafting recreation, other non-contact water recreation, warm freshwater aquatic habitat, cold freshwater aquatic habitat, warm fish migration habitat, cold fish migration habitat, warm and cold spawning habitat, wildlife habitat, navigation, groundwater recharge, and freshwater replenishment. Requirements of this General Permit implement the applicable Basin Plans.

c. **Determining the Need for WQBELs**

Water quality standards include Regional Water Board Basin Plan beneficial uses and narrative and numeric water quality objectives, State Water Board-adopted standards, and federal standards, including the CTR and NTR, as well as antidegradation policies. The Basin Plans include numeric site-specific water quality objectives and narrative objectives for toxicity, chemical constituents, and tastes and odors. The narrative toxicity objective states: "*All waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life*." With regard to the narrative chemical constituent objective, the Basin Plans state that waters shall not contain chemical constituents in concentrations that adversely affect beneficial uses. At minimum, "…*water designated for use as domestic or municipal supply (MUN) shall not contain concentrations of chemical constituents in excess of the maximum contaminant levels (MCLs)" in title 22 of CCR.* The narrative tastes and odors objective states: *"Water shall not contain taste- or odor-producing substances in concentrations that impart undesirable tastes or odors to domestic or municipal water supplies or to fish flesh or other edible products of aquatic origin, or that cause nuisance, or otherwise adversely affect beneficial uses*."

Federal regulations require effluent limitations for all pollutants that are or may be discharged at a level that will cause or have the reasonable potential to cause, or contribute to an in-stream excursion above a narrative or numerical water quality standard.

d. **Antidegradation Policy**

The permitted discharge is consistent with the antidegradation provisions of 40 C.F.R. section 131.12 and State Water Board Resolution No. 68-16. Compliance with these requirements will result in the use of best practicable treatment or control of the discharge. Due to the low volume of discharge expected from discharges regulated under this General Permit, the impact on existing water quality will be insignificant. Dischargers seeking authorization to discharge under this General Permit are required to demonstrate compliance with receiving water limitations during the application. If, however, the appropriate Regional Water Board, subsequent to review of any application, finds that the impact of a discharge will be significant, then authorization for coverage under this General Permit will be denied and coverage under an individual permit will be required (including preparation of an antidegradation analysis).

VI. RATIONALE FOR RECEIVING WATER LIMITATIONS AND MONITORING TRIGGERS

A. Groundwater

[Not Applicable]

B. Surface Water

CWA section 303(a-c), requires states to adopt water quality standards, including criteria necessary to protect beneficial uses. Regional Water Boards adopted water quality criteria as water quality objectives in the Basin Plans. The Basin Plans state that "[t]*he numerical and narrative water quality objectives define the least stringent standards that the Regional Water Board will apply to regional waters in order to protect the beneficial uses.*" The Basin Plans include numeric and narrative water quality objectives for various beneficial uses and water bodies. This General Permit contains receiving water limitations based on the Basin Plans' numerical and narrative water quality objectives for bio-stimulatory substances, chemical constituents, color, temperature, floating material, settleable substances, suspended material, tastes and odors, and toxicity. This General Permit also requires compliance with any amendment or revision to the water quality objectives contained in the Basin Plans adopted by Regional Water Boards subsequent to adoption of this General Permit.

Once algaecides and aquatic herbicides have been applied to a treatment area, the algaecide and aquatic herbicide product can actively control pests within the treatment area. The discharge of algaecides and aquatic herbicides, their residues, and their degradation byproducts from the applications to surface water must meet applicable water quality criteria and objectives. The receiving water limitations ensure that an application event* does not result in an exceedance of a water quality standard in the receiving water.

To protect all designated beneficial uses of the receiving water, the most protective (lowest) and appropriate (to implement the CTR criteria and WQOs in the Basin

Plans) criteria should be selected as the permit limitation for a particular water body and constituent. In many cases, water quality standards include narrative, rather than numerical, water quality objectives. In such cases, numeric water quality limits from the literature or publicly available information may be used to ascertain compliance with water quality criteria.

Algaecide and aquatic herbicide formulations contain disclosed “active” ingredients that yield toxic effects* on target organisms and may also have toxic effects on non-target organisms. Algaecide and aquatic herbicide active ingredients that do not contain pollutants for which there are applicable numeric CTR criteria may still have toxic effects on receiving water bodies. In addition, the inactive or “inert” ingredients of algaecides and aquatic herbicides, which are trade secrets and have not been publicly disclosed, may also contain toxic pollutants or pollutants that could affect water quality.

DPR is responsible for reviewing toxic effects of product formulations and determining whether an algaecide or aquatic herbicide is suitable for use in California’s waters. In this General Permit, inert ingredients are also considered on a constituent-by-constituent basis. U.S. EPA regulates pesticide use through strict labeling requirements in order to mitigate negative impacts to human health and the environment, and DPR environmental and medical toxicologists review toxicity data on formulations and can deny registration or work with registrants or County Agricultural Commissioners to impose additional requirements in order to protect human health or the environment.

U.S. EPA and DPR require that pesticides undergo toxicity testing and meet specific toxicity requirements before registering the pesticide for application to surface waters. U.S. EPA has found that the application of properly registered pesticides pose a minimal threat to people and the environment. In addition, the effects of these pesticides on water quality will be mitigated through compliance with FIFRA label requirements, application of BMPs, and monitoring.

Basin Plan water quality objectives to protect the beneficial uses of surface water and groundwater include numeric objectives and narrative objectives, including objectives for chemical constituents, toxicity, and tastes and odors. The toxicity objective requires that surface water and groundwater be maintained free of toxic substances in concentrations that produce detrimental physiological responses in humans, plants, animals, or aquatic life. The chemical constituent objective requires that surface water and groundwater shall not contain chemical constituents in concentrations that adversely affect any beneficial use or that exceed the MCLs set forth in title 22, Cal. Code Regs. The tastes and odors objective states that surface water and groundwater shall not contain taste- or odor-producing substances in concentrations that cause nuisance or adversely affect beneficial uses. The Basin Plans require the application of the most stringent objective necessary to ensure that surface water and groundwater do not contain chemical constituents, toxic substances, radionuclides, or taste and odor producing substances in concentrations that adversely affect domestic drinking water supply, agricultural supply, or any other beneficial use.

1. **Receiving Water Limitations**

The instantaneous maximum receiving water limitations are based on promulgated water quality criteria such as those provided in the CTR, water quality objectives adopted by the State and Regional Water Boards in their Basin Plans, water quality criteria adopted by the California Department of Fish and Wildlife, water quality standards such as drinking water standards adopted by U.S. EPA or the California Department of Public Health (CDPH), or U.S. EPA National Recommended Ambient Water Quality Criteria.

This General Permit provides receiving water limitations based on the lowest water quality criteria/objectives to protect all designated beneficial uses of the receiving water. The receiving water limitations in this General Permit are the same as those in Order No. 2004-0009-DWQ. The rationale for each limitation is summarized below.

Table D-2. Summary of Receiving Water Limitations

Constituent/ Parameter	BENEFICIAL USE[1]				Basis
	MUN, µg/L	WARM or COLD, µg/L	Other than MUN, WARM, or COLD, µg/L	All Designations	
2,4,-D	70				U.S. EPA MCL
Acrolein[2]	320	21	780		U.S. EPA Water Quality Criteria, 1986.
Copper[2]				Dissolved Freshwater[3] Copper Chronic = 0.960exp{0.8545 [ln(hardness[4])] – 1.702} [5, 6] Dissolved saltwater[3] Copper Chronic = 0.83exp{0.8545 [ln(hardness[4])] – 1.702} [5,6]	California Toxics Rule
Diquat	20				U.S. EPA MCL
Endothall	100				U.S. EPA MCL
Fluridone	560				U.S. EPA Integrated Risk Information System
Glyphosate	700				U.S. EPA MCL
Nonylphenol				Freshwater Chronic Criterion = 6.6 µg/L Saltwater Chronic Criterion = 1.7 µg/L	U.S. EPA National Recommended Ambient Water Quality Criteria
Toxicity	Algaecide and aquatic herbicide applications shall not cause or contribute to toxicity in receiving water(s).				Regional Water Boards' Basin Plans

Notes
1. See Regional Water Boards' Water Quality Control Plans (Basin Plans) for beneficial use definitions.
2. Public entities and mutual water companies listed in Attachment G are not required to meet this receiving water limitation during the exception period described in Section VIII.C.10, Limitations and Discharge Requirements, Aquatic Pesticides Application Plan (APAP).

3. For waters in which the salinity is equal to or less than 1 part per thousand 95% or more of the time, the freshwater criteria apply. For waters in which the salinity is equal to or greater than 10 parts per thousand 95% or more of the time, saltwater criteria apply. For waters in which the salinity is between 1 and 10 parts per thousand, the applicable criteria are the more stringent of the freshwater or saltwater criteria.
4. For freshwater aquatic life criteria, waters with a hardness 400 mg/L or less as calcium carbonate, the actual ambient hardness of surface water shall be used. For waters with a hardness of over 400 mg/L as calcium carbonate, a hardness of 400 mg/L as calcium carbonate shall be used with a default Water-Effect Ratio of 1.
5. Values should be rounded to two significant figures.
6. This limitation does not apply to the Sacramento River and its tributaries above the State Highway 32 Bridge at Hamilton City. See Table III-1 of the Basin Plan for the Sacramento and San Joaquin River Basins for copper limitation.

The copper limitation in Order No. 2004-0009-DWQ was based on the CTR's Criteria Continuous Concentration (CCC) expressed in total recoverable concentration. This General Permit also uses CCC from the CTR as the basis of the copper limitations; however, the copper limitation is now expressed in dissolved concentration. Since the copper criterion in the CTR is expressed in dissolved concentration, the receiving water limitation must also be expressed in dissolved rather than total concentration since it is the dissolved portion of copper that is bioavailable to aquatic life.

Based on Policy section 5.3, this General Permit grants public entities and mutual water companies listed in Attachment G a short-term or seasonal exception from meeting receiving water limitations for acrolein and copper during treatment. As a condition of the exception, this General Permit requires Dischargers to provide the length and justification of required exception periods in their APAPs. There is no discrete definition for short-term; but the intent is to allow the exception to apply during the treatment period. It is up to the Discharger to make this demonstration.

The receiving water dissolved oxygen limitation is based on the Regional Water Board Basin Plans' dissolved oxygen objectives.

2. **Receiving Water Monitoring Triggers**

In algaecide or aquatic herbicide applications, it is reasonable to conclude that some residual algaecides or aquatic herbicides will remain in the receiving waters. These residual algaecides or aquatic herbicides may cause toxicity to aquatic life. However, information regarding the specific amount of algaecide or aquatic herbicide residues (described below) in the receiving water as a result of direct applications for weed control is not adequate to develop receiving water limitations for these algaecides and aquatic herbicides. Therefore, this General Permit only contains Receiving Water Monitoring Triggers and/or monitoring requirements for these algaecides or aquatic herbicides. The monitoring triggers and monitoring data will be used to assess whether the discharges of these algaecide or aquatic herbicide residues have the reasonable potential to cause or contribute to an excursion of a water quality standard, including numeric and narrative objectives within a standard.

In the absence of adopted criteria, objectives, or standards, the State Water Board used U.S. EPA's Ambient Criteria for the Protection of Freshwater Aquatic

Life (Ambient Water Quality Criteria) which are directly applicable as a regulatory level to implement narrative toxicity limitations included in all Regional Water Board Basin Plans. Where adopted criteria, objectives, standards, or Ambient Water Quality Criteria are unavailable, the State Water Board used data from U.S. EPA's *Ecotoxicity Database* to develop the Receiving Water Monitoring Triggers to protect all beneficial uses of the receiving water.

For constituents that do not have Ambient Water Quality Criteria, the Instantaneous Maximum Receiving Water Monitoring Trigger is based on one-tenth of the lowest 50 Percent Lethal Concentration (LC50) from U.S. EPA's *Ecotoxicity Database*. Using one-tenth of the lowest LC50 as the receiving water monitoring trigger is consistent with the Central Valley Regional Water Board's Basin Plan approach when developing the Daily Maximum Limitation for algaecides or aquatic herbicides that do not have water quality criteria.

This General Permit may be re-opened to add receiving water limitations to the algaecides or aquatic herbicides listed below if the monitoring triggers are exceeded or the monitoring data indicate re-opening of the permit is appropriate. The following is a detailed discussion of toxicity data, applicable water quality criteria, and Receiving Water Monitoring Triggers, if applicable, for these algaecide or aquatic herbicide:

a. Imazamox

Imazamox is a derivative of the active ingredient, ammonium salt of imazamox for the aquatic herbicide Clearcast, which DPR registered for use in California in October 2012. It is labeled for application to water for the control of submerged aquatic plants species and some emergent and floating species.

Imazamox is an herbicide that inhibits an enzyme in aquatic plants that is essential for the synthesis of three-branched chain amino acids.

Staff obtained toxicity data for imazamox from U.S. EPA's *Ecotoxicity Database* to assess its toxicity to freshwater aquatic life. However, U.S. EPA's *Ecotoxicity Database* contains toxicity data only for imazamox, but not for its salt. Table D-3 summarizes the toxicity data for imazamox below.

Table D-3. Toxicity Data Summary for Imazamox (CAS# 114311-32-9)

Type of Organism	Study Length	Study Date	LC50 (mg/L)
Mysid	96 h	1998	> 100
		1998	> 94.3
Bluegill sunfish	96 h	1994	> 119
Rainbow trout	96 h	1994	> 122
Sheephead mino	96 h	1998	> 94.2
		1998	> 94.2
Lowest LC50/10 > 9.4 mg/L			

Ambient Water Quality Criteria are unavailable for imazamox and imazamox salt. Table D-3 shows that one-tenth of the lowest LC50 to protect the most sensitive freshwater aquatic life for imazamox is greater than 9.4 mg/l.

Due to the absence of water quality criteria for imazamox and its low toxicity to aquatic life as indicated in U.S. EPA's *Ecotoxicity Database*, this General Permit does not have a receiving water monitoring trigger for imazamox. However, this General Permit requires receiving water monitoring for imazamox to collect data, which will provide information on whether the use of imazamox has water quality impacts.

b. Imazapyr

The active ingredient imazapyr is marketed by the trade names Arsenal, Chopper, and Assault. Upon contact, imazapyr can interfere with DNA synthesis and cell growth of the plants. The target weed species are grasses, broad-leaves, vines, brambles, shrubs and trees, and riparian and emerged aquatics. The result of exposure is death of new leaves. It was first registered in the United States in 1984.

Imazapyr is a slow-acting amino acid synthesis inhibitor. It has an average water half-life* of four days with photodegradation as the primary form of degradation in water. Imazapyr acts more quickly and is less toxic than other low-volume herbicides. According to the San Francisco Estuary* Invasive Spartina Project's May 4, 2005 report titled *Use of Imazapyr Herbicide to Control Invasive Cordgrass (Spartina spp.) in the San Francisco Estuary*, imazapyr in water rapidly degrades via photolysis. The report further states that a number of field studies demonstrated that imazapyr rapidly dissipated from water within several days, and no detectable residues of imazapyr were found in either water or sediment within two months; in estuarine systems, dilution of imazapyr with the incoming tides contributes to its rapid dissipation, suggesting that imazapyr is not environmentally persistent in the estuarine environment and does not result in significant impacts to water quality. The report concludes that imazapyr herbicides can be a safe, highly effective treatment for control and eradication of non-native *Spartina* species in the San Francisco Estuary and offers an improved risk scenario over the existing treatment regime with glyphosate herbicides. On August 30, 2005, DPR registered imazapyr for aquatic application as an aquatic herbicide.

Toxicity data for imazapyr were obtained from U.S. EPA's *Ecotoxicity Database* to assess the toxicity of imazapyr to freshwater aquatic life. Tables D-4 and D-5 summarize the toxicity data for imazapyr and imazapyr salt.

Table D-4. Toxicity Data Summary for Imazapyr (CAS#81334-34-1)

Type of Organism	Study Length	Study Date	LC50 (mg/L)
Pink shrimp	96 h	1988	> 189
Atlantic silverside	96 h	1988	> 184
Bluegill sunfish	96 h	1983	> 100
		1983	> 100

Type of Organism	Study Length	Study Date	LC50 (mg/L)
Channel catfish	96 h	1983	> 100
Rainbow trout	96 h	1983	> 100
		1995	> 110
Lowest LC50/10 > 10			

Table D-5. Toxicity Data Summary for Imazapyr Isopropylamine Salt (CAS#81510-83-0)

Type of Organism	Study Length	Study Date	LC50 (mg/L)
Water flea	48 h	1984	350
Rainbow trout	96 h	1984	**112**
Bluegill sunfish	96 h	1984	> 1000
Lowest LC50/10 = 11.2			

Ambient Water Quality Criteria are unavailable for imazapyr and imazapyr salt. Tables D-4 and D-5 show that the lowest one-tenth of LC50 to protect the most sensitive freshwater aquatic life for imazapyr is 11.2 mg/l.

Due to its safe use in the environment and low toxicity to aquatic life as indicated in U.S. EPA's *Ecotoxicity Database*, this General Permit does not have a receiving water limitation for imazapyr. However, this General Permit contains a monitoring trigger of 11.2 mg/l based on one-tenth of the lowest LC50 from U.S. EPA's *Ecotoxicity Database* and requires receiving water monitoring to collect data, which will provide information on whether imazapyr has water quality impacts.

c. Penoxsulam

Penoxsulam is the active ingredient for Galleon SC, a selective systemic aquatic herbicide for management of freshwater aquatic vegetation in ponds, lakes, reservoirs, marshes, wetlands, non-irrigation canals, slow-moving water bodies, etc. Penoxsulam is a post-emergence acetolactate synthase (ALS) inhibitor developed by Dow AgroSciences to be used as a foliar spray on dry-seeded rice crops. The mode of action is to inhibit the acetolactate synthases enzyme in the target weed.

The U.S. EPA Pesticide Fact Sheet states that penoxsulam is expected to be very mobile, but not very persistent, in either aqueous or terrestrial environments. Penoxsulam exists almost exclusively in a disassociated state at pH values normally found in rice paddy water (averaging about eight), but not in terrestrial environments where lower pH values may be found. Penoxsulam degrades by two different transformation mechanisms, producing 13 different identified transformation products, 11 of which meet

the criteria to be classified as major degradation byproducts,[11] six of which reached peak concentrations at study termination, indicating a greater degree of persistence than penoxsulam and a potential to reach concentrations even greater than those reported at study termination. The results of the screening-level risk assessment suggest that penoxsulam will not pose a threat to aquatic or terrestrial animals, however, this conclusion must be tempered by the fact that testing has not been conducted on several major degradation byproducts.

Toxicity data for penoxsulam were obtained from U.S. EPA's *Ecotoxicity Database* to assess the toxicity of penoxsulam to freshwater aquatic life. Table D-6 summarizes the toxicity data for penoxsulam.

Table D-6. Toxicity Data Summary for Penoxsulam (CAS#219714-96-2)

Type of Organism	Study Length	Study Date	LC50 (mg/L)
Bluegill sunfish	96 h	2000	> 103
Common carp fish	96 h	2001	> **101**
Mysid	96 h	2000	> 114
Rainbow trout	96 h	2002	> 147
		2000	> 102
Scud	96 h	2000	> 126
Lowest LC50/10 > 10.1			

Ambient Water Quality Criteria are unavailable for penoxsulam. Table D-6 shows that the lowest one-tenth of LC50 to protect the most sensitive freshwater aquatic life for penoxsulam is greater than 10.1 mg/l.

Due to its safe use in the environment, low toxicity to aquatic life as indicated in U.S. EPA's *Ecotoxicity Database,* and lack of accurate toxicity value, this General Permit does not have a receiving water monitoring trigger. However, this General Permit requires receiving water monitoring to collect data, which will provide information on whether penoxsulam has water quality impacts.

d. Sodium Carbonate Peroxyhydrate

Sodium carbonate hydroxyhydrate has been registered as an algaecide since early 2006. The most common brand names are PAK 27, Phycomycin, and Green Clean. It is an alternative to traditional copper based algaecides. It acts as an oxidizing agent and thus kills the target algae. When it is

[11] U.S. EPA defines major degradation byproducts to be BSA, 2-amino-TP, TPSA, BSTCA methyl, BSTCA, 2-amino-TCA,5-OH-penoxsulam, SFA, sulfonamide, 5,8-di-OH and 5-OH, 2 aminoTP.

applied into water, the compound quickly breaks down into hydrogen peroxide (H_2O_2) and sodium carbonate. The hydrogen peroxide oxidizes and thus kills the target pests. After contact, the hydrogen peroxide breaks down into water and oxygen.

U.S. EPA has waived toxicity testing for freshwater fish and invertebrate during the registration process. According to the U.S. EPA fact sheet, when the pesticide is applied in accordance with directions on the label, no harm is expected to freshwater fish or freshwater invertebrates.

There are no toxicity data for sodium carbonate peroxyhydrate in U.S. EPA's *Ecotoxicity Database.* Therefore, this General Permit does not have a monitoring trigger or a monitoring requirement for sodium carbonate peroxyhydrate.

e. Triclopyr Triethylamine (TEA) Salt

Triclopyr TEA is a systemic herbicide used to control broad-leaf weeds and woody plants.

U.S. EPA concluded in its re-registration document that triclopyr TEA is practically non-toxic to freshwater fish and aquatic invertebrates on an acute basis and triclopyr TEA is slightly toxic to practically non-toxic to estuarine/marine fish and invertebrates on an acute basis.

Triclopyr produces the metabolite or degradate 3,5,6-trichloro-2-pyridinol (TCP). Based on its analysis, U.S. EPA concludes that the existing uses of triclopyr are unlikely to result in acute or chronic dietary risks from TCP. Based on limited available data and modeling estimates, with less certainty, the U.S. EPA concluded that existing uses of triclopyr are unlikely to result in acute or chronic drinking water risks from TCP.

Toxicity data for triclopyr TEA were obtained from U.S. EPA's *Ecotoxicity Database* to assess the toxicity of triclopyr TEA to freshwater aquatic life. Table D-7 summarizes the toxicity data for Triclopyr TEA.

Table D-7. Toxicity Data Summary for Triclopyr TEA Salt (CAS#57213-69-1)

Type of Organism	Study Length	Study Date	LC50 (mg/L)
Bluegill sunfish	96 h	1978	891
	96 h	1973	471
Fathead minnow	96 h	1978	947
	96 h	1983	546
	96 h	1983	279
Grass shrimp	96 h	1992	326
Inland Silverside fish	96 h	1989	**130**
Pink shrimp	96 h	1975	895
Rainbow trout	96 h	1973	240
	96 h	1978	552

Type of Organism	Study Length	Study Date	LC50 (mg/L)
Lowest LC50/10 = 13.0			

Ambient Water Quality Criteria are unavailable for triclopyr TEA. Table D-7 shows that the lowest one-tenth of LC50 to protect the most sensitive freshwater aquatic life for triclopyr TEA is 13 mg/l.

Due to its safe use in the environment and low toxicity to aquatic life as indicated in U.S. EPA's *Ecotoxicity Database*, this General Permit does not have a receiving water limitation for triclopyr TEA. However, this General Permit contains a monitoring trigger of 13.0 mg/l based on one-tenth of the lowest LC50 from U.S. EPA's *Ecotoxicity Database* and requires receiving water monitoring to collect data, which will provide information on whether triclopyr TEA has water quality impacts.

VII. RATIONALE FOR MONITORING AND REPORTING REQUIREMENTS

A. MRP Goals

Section 122.48 of 40 C.F.R. requires that all NPDES permits specify requirements for recording and reporting monitoring results. Water Code sections 13267 and 13383 authorize the State and Regional Water Boards to require technical and monitoring reports. The Monitoring and Reporting Program (MRP) in Attachment C of this General Permit establishes monitoring and reporting requirements to implement federal and state requirements.

The goals of the MRP are to:

1. Identify and characterize algaecide or aquatic herbicide application projects conducted by the Discharger;
2. Determine compliance with the receiving water limitations and other requirements specified in this General Permit;
3. Measure and improve the effectiveness of the APAP;
4. Support the development, implementation, and effectiveness of BMPs;
5. Assess the chemical, physical, and biological impacts on receiving waters resulting from algaecide or aquatic herbicide applications;
6. Assess the overall health and evaluate long-term trends in receiving water quality;
7. Demonstrate that water quality of the receiving waters following completion of resource or weed management projects are equivalent to pre-application conditions; and
8. Ensure that projects that are monitored are representative of all algaecide or aquatic herbicide and application methods used by the Discharger.

The MRP in the Attachment C of this General Permit is considered as baseline monitoring requirements. Monitoring plans proposed by Dischargers in their APAP must meet the minimum requirements prescribed in the MRP. Public entities and mutual water companies that have a Policy section 5.3 exception should comply with the MRP in this General Permit as well as monitoring plan proposed in their CEQA document where the two plans differ.

B. Effluent Monitoring

Pursuant to the requirements of 40 C.F.R. section 122.44(i), effluent monitoring is required for all constituents with effluent limitations. Effluent monitoring is necessary to assess compliance with effluent limitations, assess the effectiveness of the treatment process, and assess the impacts of the discharge on the receiving water and groundwater.

The application of pesticides for pest control is not necessarily considered a discharge of pollutants according to the *National Cotton Council of America v. U.S. EPA* decision and other applicable case law. The regulated discharge is the discharge of residual pesticides. At what point the pesticide becomes a residue is not precisely known. Therefore, in the application of pesticides, the exact effluent is unknown. Thus, the effluent monitoring requirement is not applicable for algaecide or aquatic herbicide applications.

C. Toxicity Testing Requirements

The State Water Board, pursuant to the Porter-Cologne Act and the federal CWA, customarily requires the Discharger to conduct toxicity monitoring. In fact, both Acts anticipate Discharger self monitoring. However, this General Permit does not require toxicity testing based on the 2004 toxicity study funded by the State Water Board and data collected from 2004 to 2008. The toxicity study found the following: (1) There was no toxicity with the use of 2,4-D, glyphosate, and triclopyr; (2) Toxicity testing was difficult for acrolein due to its volatility; (3) Results were inconclusive for diquat and fluridone; and (4) Peak copper concentrations did not exceed toxicity values. The monitoring data collected under Order No. 2004-0009-DWQ from 2004 to 2008 showed that all constituent concentrations from post-event application samples were below receiving water limitations except for the following: three exceedances each for acrolein and glyphosate and 82 exceedances for copper out of 288 monitoring events. For glyphosate, it is likely that the three exceedances were not the result of aquatic herbicide applications because the pre-application samples also showed exceedances and the remaining 151 samples showed no exceedance. For copper, 43 of the 82 exceedances were from public agencies or mutual water companies that were excepted from meeting priority pollutant limitations during the exception period. The Policy allows the exception. Thus, staff did not consider these exceedances as violations of the receiving water limitations. However, 39 of the exceedances were from entities that did not have a Policy exception. Although staff considered these exceedances as true violations of the receiving water limitations, staff is not aware of any long-term impacts from these exceedances. Long-term impacts from

exceedances are likely not going to occur for the following reasons: (1) water quality criteria, which are used directly as receiving water limitations in this General Permit, have built-in factors of safety; (2) as shown in the 2004 toxicity study, the actual peak concentrations after applications of copper did not exceed toxicity values; and (3) the applications are short-term in duration. All of the foregoing information indicates that widespread acute ecosystem impacts will not occur from algaecide or aquatic herbicides applied according to their label instructions and requirements of this General Permit. Therefore, toxicity monitoring requirements are not necessary.

D. Receiving Water Monitoring

Receiving water monitoring is necessary to determine the impacts of the discharge on the receiving stream.

All forms of testing have some degree of uncertainty associated with them. The more limited the amount of test data available, the larger the uncertainty. The intent of this General Permit's sampling program is to select a number that will detect most events of noncompliance without requiring needless or burdensome monitoring.

Staff also used EPA's Technical Support Document for Water Quality-Based Toxics Control (TSD) to determine the appropriate number of samples that would be needed to characterize the impacts of the residual pesticide discharge from pesticide applications. Page 53 of the TSD recommends using a coefficient of variation (CV) 0.6 when the data set contains less than 10 samples. Table 3-1 of the TSD shows that with a CV of 0.6, the multiplying factors used to determine whether a discharge causes, has the reasonable potential to cause, or contributes to an excursion above a state water quality standard begin to stabilize when the sample number is six. Thus, this General Permit requires six samples per year for each active ingredient in each environmental setting (flowing water and non-flowing water) to characterize the effects of residual pesticide discharge from pesticide applications. However, after a Discharger or Coalition has provided results from six consecutive sampling events showing concentrations that are less than the receiving water limitation/trigger for an active ingredient in a specific environmental setting, sampling shall be reduced to one application event per year for that active ingredient in that environmental setting.

Similarly, this General Permit contains a reduced monitoring frequency of once per year (instead of six) at each environmental setting for glyphosate. The reduced monitoring frequency is based on staff's review of available data from 2004 to 2008 that showed no exceedance of the permit limitation for glyphosate under Order No. 2004-0009-DWQ.

VIII. RATIONALE FOR AQUATIC PESTICIDE USE REQUIREMENTS

A. Application Schedule

The Discharger shall provide a phone number or other specific contact information for all persons who request the Discharger's application schedule.

B. Application Notification Requirements

The Policy section 5.3, Categorical Exception, requires public agencies and mutual water companies that have been granted the short-term or seasonal exception for compliance with priority pollutant limitations to notify potentially affected public and government agencies of algaecide or aquatic herbicide application.

C. APAP

This General Permit contains narrative effluent limitations, which include implementing BMPs described in the APAP, which is a requirement of this General Permit. See Section VI, Rationale for Effluent Limitations and Discharge Specifications, for more detailed explanation of the need for an APAP.

D. APAP Processing, Approval, and Modifications

Upon receipt of a new or an amended APAP, staff will post it on the State Water Board's website. Major changes to the APAP shall be submitted to the Deputy Director for approval. Examples of major changes include using a different product other than what is specified in the APAP, changing an application method that may result in different amounts of algaecide or aquatic herbicides being applied, or adding or deleting BMPs. Since the APAP shall include ALL (1) the water bodies or water body systems in which algaecide or aquatic herbicides are being planned to be applied or may be applied to control algae and aquatic weeds and (2) the application areas and the target areas in the system that are being planned to be applied or may be applied, changes in monitoring locations are not considered major changes. However, these changes need to be reported in the annual report.

In preparing for the reissuance of the General Permit, staff will evaluate review periods and comments received during the life of this permit and look for efficiencies. Based on this information, staff will propose revisions to the public comment process for APAPs.

E. Aquatic Pesticide Application Log

An application log to record all algaecide or aquatic herbicide applications is necessary. This application log will help Dischargers and the Water Boards' staff to investigate any exceedance of receiving water limitations or receiving water monitoring triggers.

IX. RATIONALE FOR PROVISIONS

A. Standard Provisions

1. Standard Provisions in Attachment B

Standard Provisions, which apply to all NPDES permits in accordance with 40 C.F.R. section 122.41, and additional conditions applicable to specified categories of permits in accordance with 40 C.F.R. section 122.42, are provided

in Attachment B. The Discharger must comply with applicable standard provisions and with those additional conditions that are applicable under 40 C.F.R. section 122.42.

Sections 122.41(a)(1) and (b) through (n) of 40 C.F.R. establish conditions that apply to all state-issued NPDES permits. These conditions must be incorporated into the permits either expressly or by reference. If incorporated by reference, a specific citation to the regulations must be included in the General Permit. Section 123.25(a)(12) of 40 C.F.R. allows the state to omit or modify conditions to impose more stringent requirements. In accordance with 40 C.F.R. Section 123.25, this General Permit omits federal conditions that address enforcement authority specified in 40 C.F.R. section 122.41(j)(5) and (k)(2) because the enforcement authority under the California Water Code is more stringent. In lieu of these conditions, this General Permit incorporates by reference California Water Code section 13387(e).

2. **Discharge to Impaired Water Bodies**

Impaired water bodies are water quality limited segments listed under CWA 303(d) listings. The water bodies on these lists do not meet water quality standards, even if the discharge itself meets water quality standards. The Basin Plans state that "*Additional treatment beyond minimum federal standards will be imposed on dischargers to Water Quality Limit Segments. Dischargers will be assigned or allocated a maximum allowable load of critical pollutants so that water quality objectives can be met in the segment.*" The allocated loads are Discharger and receiving water specific. It is infeasible to assign a uniform load in a statewide general permit. Therefore, this General Permit does not authorize the discharge of active ingredients of algaecides or aquatic herbicides, their residues, and their degradation byproducts to water bodies that are already impaired due to the same product active ingredients, their residues, and their degradation byproducts.

B. Special Provisions

1. **Reopener Provisions**

The reopener provisions allow future modification to this General Permit in accordance with 40 C.F.R. section 122.62.

a. Addition to Policy Exception List in Attachment G

This General Permit may be reopened to add a public entity or a mutual water company which may not otherwise meet the receiving water limitations for acrolein and copper and meets the requirements for an exception from meeting those limitations, consistent with section 5.3 of the Policy.

b. Addition of Aquatic Pesticide Active Ingredients

This General Permit may be reopened to add newly registered algaecide or aquatic herbicide active ingredients so that Dischargers can be covered by this General Permit when they apply the algaecide or aquatic herbicide products with the new active ingredients.

c. Acute and Chronic Toxicity

When the State Water Board revises the Policy's toxicity control provisions that would require the establishment of numeric chronic toxicity limitations or other actions, this General Permit may be reopened to comply with those requirements.

d. Receiving Water Limitations

If monitoring data for residual pesticides show exceedance of monitoring triggers, the Discharger or Coalition shall conduct additional investigations to determine the cause of exceedance. At a minimum, the Discharger or Coalition shall evaluate its application methods, BMPs, and the appropriateness of using alternative products. As a result of the evaluation, this General Permit may be re-opened to add numeric Receiving Water Limitations for the residual pesticides exceeding the triggers.

e. Endangered Species Act

If U.S. EPA develops biological opinions regarding pesticides included in this General Permit, this General Permit may be re-opened to add or modify Receiving Water Limitations/Monitoring Triggers for residual pesticides of concern, if necessary.

2. **Special Studies, Technical Reports, and Additional Monitoring Requirements**

a. Additional Investigation

This General Permit requires Dischargers to conduct additional investigations if the monitoring results exceed the receiving water monitoring limitations. These investigations are necessary in order to address the exceedance caused by the algaecide or aquatic herbicide application and meet the General Permit's limitations and requirements including Basin Plans' narrative water quality objective of no toxics in toxic amount.

b. Qualified Biologist Certification Following Project Completion

The requirement is retained from Order No. 2004-0009-DWQ and is based on Policy section 5.3 exception.

3. **Corrective Action**

When receiving water limitations or triggers are exceeded, Dischargers are expected to assess the cause of exceedance and take appropriate actions as necessary to prevent recurrence of the problem.

X. COMPLIANCE DETERMINATION

This General Permit specifies that compliance be based on event and post-event sampling results. The event sample results will determine if exceedance occurred outside the Treatment Area* during treatment. Post-event samples will determine if exceedance occurred in the Application or Treatment Area after treatment. Since the minimum effective concentration and time needed to effectively kill or control target weeds or algae vary due

to site specific conditions, such as flow, target species, water chemistry, and type of algaecides or aquatic herbicides, this General Permit allows Dischargers to determine when treatment is completed.

XI. PUBLIC PARTICIPATION

The State Water Board is considering the issuance of WDRs that will serve as a general NPDES permit for algaecide or aquatic herbicide applications. As a step in the WDR adoption process, the State Water Board staff has developed tentative WDRs. The State Water Board encourages public participation in the WDR adoption process.

A. Notification of Interested Parties

The State Water Board has notified interested agencies, parties, and persons of its intent to prescribe general WDRs for algaecide or aquatic herbicide applications and has provided them with an opportunity to submit their written comments and recommendations. Notification was provided to interested parties through specific mailings and publication in major newspapers throughout California. The State Water Board, in a public meeting, heard and considered all comments pertaining to discharges to be regulated by this General Permit. Details of the Public Hearing are provided in the Fact Sheet of this General Permit.

B. Written Comments

Interested persons were invited to submit written comments concerning this tentative WDR. Comments were due at the State Water Board offices by 12:00 noon on **August 21, 2012**. Seven comment letters were received.

C. Public Hearing and Meeting

The State Water Board held a public hearing on the tentative WDRs during its regular Board meeting on **August 7, 2012**. The State Water Board will consider adoption of the WDRs at a public meeting on the following date, time, and location:

Date:	**February 19, 2013**
Time:	9:00 a.m.
Location:	State Water Resources Control Board 1001 I Street Sacramento, CA 95814

Interested persons are invited to attend. At the public meeting, the State Water Board will hear comments, if any, limited to changes on the draft General Permit.

Please be aware that dates and venues may change. The State Water Board's website address is www.waterboards.ca.gov where you can access the current agenda for changes in dates and locations.

D. Information and Copying

The tentative effluent limitations, receiving water limitations, and special provisions, comments received, and other information are on file and may be inspected at the address above at any time between 8:30 a.m. and 4:45 p.m., Monday through Friday. Copying of documents may be arranged through the State Water Board by calling (916) 379-9152.

E. Register of Interested Persons

Any person interested in being placed on the mailing list for information regarding this general WDR and NPDES permit should contact the State Water Board, reference the general WDR and NPDES permit, and provide a name, address, and phone number.

F. Additional Information

Requests for additional information or questions regarding this General Permit should be directed to NPDES_Wastewater@waterboards.ca.gov.

Attachment E – Notice of Intent

WATER QUALITY ORDER NO. 2013-0002-DWQ
GENERAL PERMIT NO. CAG990005

STATEWIDE GENERAL NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT FOR RESIDUAL AQUATIC PESTICIDE DISCHARGES TO WATERS OF THE UNITED STATES FROM ALGAE AND AQUATIC WEED CONTROL APPLICATIONS

I. NOTICE OF INTENT STATUS (see Instructions)

Mark only one item	A. New Applicator	B. Change of Information: WDID# _____	
	C. ☐ Change of ownership or responsibility: WDID# _____		

II. DISCHARGER INFORMATION

A. Name			
B. Mailing Address			
C. City	D. County	E. State	F. Zip
G. Contact Person	H. E-mail address	I. Title	J. Phone

III. BILLING ADDRESS (Enter Information *only* if different from Section II above)

A. Name			
B. Mailing Address			
C. City	D. County	E. State	F. Zip
G. E-mail address	H. Title	I. Phone	

IV. RECEIVING WATER INFORMATION

A. Algaecide and aquatic herbicides are used to treat (check all that apply):

1. ☐ Canals, ditches, or other constructed conveyance facilities owned and controlled by Discharger.
   Name of the conveyance system: _____
2. ☐ Canals, ditches, or other constructed conveyance facilities owned and controlled by an entity other than the Discharger.
   Owner's name:_____
   Name of the conveyance system: _____
3. Directly to river, lake, creek, stream, bay, ocean, etc.
   Name of water body: _____

B. Regional Water Quality Control Board(s) where treatment areas are located (REGION 1, 2, 3, 4, 5, 6, 7, 8, or 9): Region _____
(List all regions where algaecide and aquatic herbicide application is proposed.)

V. ALGAECIDE AND AQUATIC HERBICIDE APPLICATION INFORMATION

A. Target Organisms: ____

B. Algaecide and Aquatic Herbicide Used: List Name and Active ingredients

C. Period of Application: Start Date_____ End Date_____

D. Types of Adjuvants Used:

VI. AQUATIC PESTICIDE APPLICATION PLAN

Has an Aquatic Pesticide Application Plan been prepared and is the applicator familiar with its contents?
☐ Yes ☐ No

If not, when will it be prepared? _____

VII. NOTIFICATION

Have potentially affected public and governmental agencies been notified? ☐ Yes ☐ No

VIII. FEE

Have you included payment of the filing fee (for first-time enrollees only) with this submittal?
☐ YES ☐ NO ☐ NA

IX. CERTIFICATION

"I certify under penalty of law that this document and all attachments were prepared under my direction and supervision in accordance with a system designed to ensure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine or imprisonment. Additionally, I certify that the provisions of the General Permit, including developing and implementing a monitoring program, will be complied with."

A. Printed Name: _____

B. Signature: _____ **Date:** _____

C. Title: _____

XI. FOR STATE WATER BOARD STAFF USE ONLY

WDID:	**Date NOI Received:**	**Date NOI Processed:**
Case Handler's Initial:	**Fee Amount Received:** **$**	**Check #:**
☐ **Lyris List Notification of Posting of APAP**	**Date** _____	**Confirmation Sent** _____

INSTRUCTIONS FOR COMPLETING NOI

WATER QUALITY ORDER NO. 2013-0002-DWQ
GENERAL PERMIT NO. CAG990005

STATEWIDE GENERAL NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT FOR RESIDUAL AQUATIC PESTICIDE DISCHARGES TO WATERS OF THE UNITED STATES FROM ALGAE AND AQUATIC WEED CONTROL APPLICATIONS

These instructions are intended to help you, the Discharger, to complete the Notice of Intent (NOI) form for the Statewide General NPDES permit. **Please type or print clearly when completing the NOI form**. For any field, if more space is needed, submit a supplemental letter with the NOI.

Send the completed and signed form along with the filing fee and supporting documentation to the Division of Water Quality, State Water Resources Control Board. Please also send a copy of the form and supporting documentation to the appropriate Regional Water Quality Control Board (Regional Water Board).

Section I – Notice of Intent Status

Indicate whether this request is for the first time coverage under this General Permit or a change of information for the discharge already covered under this General Permit. Dischargers that are covered under Order No. 2004-0009-DWQ before effective date of this General Permit should check the box for change of information. For a change of information or ownership, please supply the eleven-digit Waste Discharge Identification (WDID) number for the discharge.

Section II – Discharger Information

Enter the name of the Discharger.
Enter the street number and street name where correspondence should be sent (P.O. Box is acceptable).
Enter the city that applies to the mailing address given.
Enter the county that applies to the mailing address given.
Enter the state that applies to the mailing address given.
Enter the zip code that applies to the mailing address given.
Enter the name (first and last) of the contact person.
Enter the e-mail address of the contact person.
Enter the contact person's title.
Enter the daytime telephone number of the contact person

Section III – Billing Address

Enter the information **only** if it is different from Section II above.

A. Enter the name (first and last) of the person who will be responsible for the billing.

B. Enter the street number and street name where the billing should be sent (P.O. Box is acceptable).
C. Enter the city that applies to the billing address.
D. Enter the county that applies to the billing address.
E. Enter the state that applies to the billing address.
F. Enter the zip code that applies to the billing address.
G. Enter the e-mail address of the person responsible for billing.
H. Enter the title of the person responsible for billing.
I. Enter the daytime telephone number of the person responsible for billing.

Section IV – Receiving Water Information

Please be reminded that this General Permit does not authorize any act that results in the taking of a threatened or endangered species or any act that is now prohibited, or becomes prohibited in the future, under either the California Endangered Species Act (Fish and Game Code §2050 et. seq) or the Federal Endangered Species Act (16 U.S.C.A. §1531 et. seq). This General Permit requires compliance with effluent limitations, receiving water limitations, and other requirements to protect the beneficial uses of waters of the state. The Discharger is responsible for meeting all requirements of the applicable Endangered Species Act.

Additional information on federally-listed threatened or endangered species and federally-designated critical habitat is available from NMFS (www.nmfs.noaa.gov) for anadromous or marine species or FWS (www.fws.gov) for terrestrial or freshwater species.

A. Check all boxes that apply. At least one box must be checked.
1. Check this box if the treatment area is a canal, ditch, or other constructed conveyance system owned and controlled by Discharger. Print the name of the conveyance system.
2. Check this box if the treatment area is a canal, ditch, or other constructed conveyance system owned and controlled by an entity other than the Discharger. Print the owner's name and names of the conveyance system.
3. Check this box if the treatment area is not a constructed conveyance system (including application to river, lake, creek, stream, bay, or ocean) and enter the name(s) of the water body(s).

B. List all Regional Water Board numbers where algaecide and aquatic herbicide application is proposed. Regional Water Board boundaries are defined in section 13200 of the California Water Code. The boundaries can also be found on our website at http://www.waterboards.ca.gov/waterboards_map.shtml

Regional Water Board Numbers	Regional Water Board Names
1	North Coast
2	San Francisco Bay
3	Central Coast

Regional Water Board Numbers	Regional Water Board Names
4	Los Angeles
5	Central Valley (Includes Sacramento, Fresno, Redding Offices)
6	Lahontan (South Lake Tahoe, Victorville offices)
7	Colorado River Basin
8	Santa Ana
9	San Diego

Section V – Algaecide and Aquatic Herbicide Application Information

A. List the appropriate target organism(s).
B. List the name and active ingredients of each algaecide and aquatic herbicide to be used.
C. List the start and end date of proposed aquatic algaecide and aquatic herbicide application event.
D. List the name(s) and type(s) of adjuvants that will be used.

The Discharger must submit a new NOI if any information stated in this section will be changed. If the Discharger plans to use an algaecide and aquatic herbicide product not currently covered under its Notice of Applicability (NOA), and the algaecide and aquatic herbicide product may be discharged to a water of the United States as a result of algaecide and aquatic herbicide application, the Discharger must receive a revised NOA from the State Water Board's Deputy Director of the Division of Water Quality before using that product.

Section VI – Aquatic Pesticide Application Plan

The Coalition or Discharger must prepare and complete an Aquatic Pesticide Application Plan (APAP). The minimum contents of APAP are specified in the permit under Section VIII.C, Limitations and Discharge Requirements, of the General Permit. The Discharger must ensure that its applicator is familiar with the APAP contents before algaecide and aquatic herbicide application.

If an APAP is not complete at the time of application, enter the date by which it will be completed.

Section VII – Notification

Indicate if you have notified potentially affected public and governmental agencies, as required under item VIII.B of the General Permit.

Section VIII – Fee

The amount of Annual fee shall be based on Category 3 discharge specified in section 2200(b)(9) of title 23, California Code of Regulations. Fee information can be found at http://www.waterboards.ca.gov/resources/fees/docs/fy1112fee_schdl_npdes_prmt.pdf.

Check the YES box if you have included payment of the annual fee. Check the NO box if you have not included this payment. **NOTE:** You will be billed annually and payment is required to continue coverage.

Section IX– Certification

A. Print the name of the appropriate official. The person who signs the NOI must meet the signatory and certification requirements stated in Attachment B Standard Provisions item V.B.
B. The person whose name is printed above must sign and date the NOI.
C. Enter the title of the person signing the NOI.

Attachment F – Notice of Termination

WATER QUALITY ORDER NO. 2013-0002-DWQ
GENERAL PERMIT NO. CAG990005

STATEWIDE GENERAL NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT FOR RESIDUAL AQUATIC PESTICIDE DISCHARGES TO WATERS OF THE UNITED STATES FROM ALGAE AND AQUATIC WEED CONTROL APPLICATIONS

I. WDID

WDID# _____

II. DISCHARGER INFORMATION

A. Name			
B. Mailing Address			
C. City	D. County	E. State	F. Zip
G. Contact Person	H. E-mail address	I. Title	J. Phone

III. BASIS FOR TERMINATION

IV. CERTIFICATION

"I certify under penalty of law that 1) I am not required to be permitted under this General Permit No.CAG990005, and 2) this document and all attachments were prepared under my direction and supervision in accordance with a system designed to ensure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine or imprisonment. Additionally, I understand that the submittal of this Notice of Termination does not release an algaecide or aquatic herbicide applicator from liability for any violations of the Clean Water Act."

A. Printed Name: _____

B. Signature: _____ **Date:** _____

C. Title: _____

V. FOR STATE WATER BOARD USE ONLY

☐ **Approved for Termination** ☐ **Denied and Returned to the Discharger**

A. Printed Name: _____

B. Signature: _____

C. Date: _____

NOT Effective Date: / /

Attachment G – Exception List

LIST OF PUBLIC AGENCIES AND MUTAL WATER COMPANIES GRANTED AN EXCEPTION PURSUANT TO STATE WATER RESOURCES CONTROL BOARD POLICY FOR IMPLEMENTATION OF TOXICS STANDARDS FOR INLAND SURFACE WATERS, ENCLOSED BAYS, AND ESTUARIES OF CALIFORNIA

The public entities and mutual water companies listed herein have prepared Initial Studies, Negative Declarations (ND), Mitigated Negative Declarations (MND), and Notices of Determination for the discharge of algaecides and aquatic herbicides in accordance with the California Environmental Quality Act (CEQA (Public Resources Code § 21000 et seq.)) to comply with the exception requirements of section 5.3 of the Policy. The boards of each public entity, as the lead agencies under CEQA, approved the Final ND/MND and determined that the discharge of algaecides and aquatic herbicides in their respective projects would not have a significant effect on the environment. These public entities and mutual water companies have determined that the water quality or related water quality impacts identified in the environmental assessments of the ND/MND are less than significant.

In addition to submitting the CEQA documentation, these public entities and mutual water companies have also complied with the other exception requirements of section 5.3 of the Policy.

As required in section 15096 of the CEQA Guidelines, the State Water Resources Control Board (State Water Board), as a Responsible Agency under CEQA, considered the ND/MND approved by the board of each public entity and finds that the projects will have less than significant water quality impact if the waste discharge requirements in this General Permit are followed. Accordingly, the public entities and mutual water companies listed herein are hereby granted an exception pursuant to section 5.3 of the Policy.

1. Byron-Bethany Irrigation District
2. City of Antioch Department of Public Works
3. Contra Costa Water District
4. Contra Costa County Flood Control and Water Conservation District
5. Department of Food and Agriculture
6. Department of Water Resources
7. Friant Water Users Authority
8. Glenn-Colusa Irrigation District
9. Maine Prairie Water District
10. Marin Municipal Water District
11. Metropolitan Water District of Southern California
12. Modesto Irrigation District
13. Nevada Irrigation District

14. North Marin Water District
15. Oakdale Irrigation District
16. Placer County Water Agency
17. Potter Valley Irrigation District
18. Princeton-Cordora-Glenn Irrigation District
19. Provident Irrigation District
20. Reclamation District 1004
21. Santa Cruz Water Department
22. Solano Irrigation District
23. South Feather Water and Power Agency
24. South Sutter Water District
25. Tehama Colusa Canal Authority
26. Turlock Irrigation District
27. Woodbridge Irrigation District
28. Yolo County Flood Control and Water Conservation District

Appendix B

TURLOCK IRRIGATION DISTRICT
NOTICE OF INTENT

Attachment E – Notice of Intent

WATER QUALITY ORDER NO. 2013-0002-DWQ
GENERAL PERMIT NO. CAG990005

STATEWIDE GENERAL NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT FOR RESIDUAL AQUATIC PESTICIDE DISCHARGES TO WATERS OF THE UNITED STATES FROM ALGAE AND AQUATIC WEED CONTROL APPLICATIONS

I. NOTICE OF INTENT STATUS (see Instructions)

Mark only one item	A. New Applicator	B. X Change of Information: WDID# 5B50AP00004
	C. ☐ Change of ownership or responsibility: WDID#	

II. DISCHARGER INFORMATION

A. Name Turlock Irrigation District			
B. Mailing Address PO Box 949			
C. City Turlock	D. County Stanislaus/Merced	E. State CA	F. Zip 95381-0949
G. Contact Person Michael Niemi	H. E-mail address mjniemi@tid.org	I. Title Water Resources Analyst	J. Phone 209-883-8346

III. BILLING ADDRESS (Enter Information *only* if different from Section II above)

A. Name			
B. Mailing Address			
C. City	D. County	E. State	F. Zip
G. E-mail address	H. Title	I. Phone	

IV. RECEIVING WATER INFORMATION

A. Algaecide and aquatic herbicides are used to treat (check all that apply):

1. ☒ Canals, ditches, or other constructed conveyance facilities owned and controlled by Discharger.
   Name of the conveyance system: Turlock Irrigation District Canal System
2. ☐ Canals, ditches, or other constructed conveyance facilities owned and controlled by an entity other than the Discharger.
   Owner's name: _____
   Name of the conveyance system: _____
3. Directly to river, lake, creek, stream, bay, ocean, etc.
   Name of water body: _____

B. Regional Water Quality Control Board(s) where treatment areas are located (REGION 1, 2, 3, 4, 5, 6, 7, 8, or 9): Region 5
(List all regions where algaecide and aquatic herbicide application is proposed.)

V. ALGAECIDE AND AQUATIC HERBICIDE APPLICATION INFORMATION

A. Target Organisms: ____
Algae & Aquatic Weeds

B. Algaecide and Aquatic Herbicide Used: List Name and Active ingredients

- Magnacide H (acrolein)
- Cascade (dipotassium salt of endothall)
- Teton (mono(N,N-dimethylalkylamine) salt of endothall)
- Roundup Custom (glyphosate (N-(phosphonomethyl) glycine isopropylamine salt))
- Clearcast (ammonium salt of imazamox)

C. Period of Application: Start Date January 1 End Date December 31

D. Types of Adjuvants Used: A non-ionic surfactant such as Target Specialty Products *Pro-Spreader Activator*

VI. AQUATIC PESTICIDE APPLICATION PLAN

Has an Aquatic Pesticide Application Plan been prepared and is the applicator familiar with its contents?
☒ Yes ☐ No

If not, when will it be prepared? _____

VII. NOTIFICATION

Have potentially affected public and governmental agencies been notified? ☒ Yes ☐ No

VIII. FEE

Have you included payment of the filing fee (for first-time enrollees only) with this submittal?
☐ YES ☐ NO ☒ NA

IX. CERTIFICATION

"I certify under penalty of law that this document and all attachments were prepared under my direction and supervision in accordance with a system designed to ensure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine or imprisonment. Additionally, I certify that the provisions of the General Permit, including developing and implementing a monitoring program, will be complied with."

A. Printed Name: Tou Her

B. Signature: _____ **Date:** 8/12/16

C. Title: Assistant General Manager-Water Resources

XI. FOR STATE WATER BOARD STAFF USE ONLY

WDID:	**Date NOI Received:**	**Date NOI Processed:**
Case Handler's Initial:	**Fee Amount Received:** **$**	**Check #:**
☐ **Lyris List Notification of Posting of APAP**	**Date** _____	**Confirmation Sent** _____

Appendix C

PUBLIC NOTICE REQUIREMENTS
AND
PESTICIDE APPLICATION LOGS

PUBLIC NOTICE REQUIREMENTS AND SCHEDULE

PUBLIC NOTICE REQUIREMENTS. Pursuant to the Section VIII. B of the General Permit, "every calendar year, at least 15 days prior to the first application of algaecide or aquatic herbicide, the discharger shall notify potentially affected public agencies. The notification shall include the following information:

a. A statement of the discharger's intent to apply algaecide or aquatic herbicide(s);
b. Name of algaecide or aquatic herbicide(s);
c. Purpose of use;
d. General time period and locations of expected use;
e. Any water use restrictions or precautions during treatment; and
f. A phone number that interested persons may call to obtain additional information from the discharger."

Pursuant to the above requirement, TID must notify the following agencies:

- Department of Fish and Wildlife

The following page contains a draft letter to the above mentioned agency. Each year, TID will send a similar letter, containing the required notification information, to the above mentioned agency.

March 1, 20XX

Department of Fish and Wildlife
1234 E. Shaw Ave.
Fresno, CA 93710

The Turlock Irrigation District is getting close to beginning its 20XX irrigation season. The Facilities and Pest Control Department plans to use the aquatic herbicides; Magnacide-H, Cascade and Teton to control submerged and floating aquatic weeds in our canal system.

Magnacide-H is a “restricted use” pesticide (E.P.A. Reg. No. 10707-9, E.P.A. Est. 10707-5, E.P.A. SLN No. CA 930006) and according to the label instructions, we are to inform your agency of intended application. Additionally, the Statewide General NPDES Permit for aquatic pesticide discharges from aquatic weed control applications requires that we notify potentially affected public agencies.

TID will begin applying of these aquatic pesticides to various locations within the canal system in the next several weeks. Applications will continue as needed through the irrigation season which typically runs until October. We have used Magnacide-H in our canals for over 25 years and Cascade and Teton for three years and feel we have accomplished the job of controlling algae and aquatic weeds without affecting fish and other aquatic life in the rivers where our canal system spills.

If you need any further information or would like to observe and application, please call me at (209)-883-8346.

Sincerely,

Michael Niemi
Water Resources Analyst

ALGAECIDE AND AQUATIC HERBICIDE APPLICATION LOG REQUIREMENTS

Pursuant to Section VIII. E of the General Permit, the "discharger shall maintain a log for each algaecide and aquatic herbicide application. The application log shall contain, at a minimum, the following information:

1. Date of application;
2. Location of application;
3. Name of applicator;
4. Type and amount of algaecide and aquatic herbicide used;
5. Application details, flow and level of water body, time application started and stopped, and algaecide and aquatic herbicide application rate and concentration;
6. Visual monitoring assessment; and
7. Certification that applicator(s) followed the APAP."

TID also includes the following information on the algaecide and aquatic herbicide application log:

1. List of gates or control structures in the treatment area that may discharge to surface waters, if applicable;
2. Time of gate or control structure closure and reopening, include any calculations used to determine closure and reopening times, if applicable;
3. A map of the application area, treatment area, locations of major canals, spillways, or gates that may flow to natural waters.
4. Information used to calculate dosage and quantity of aquatic herbicide used at each application site.

MAGNACIDE H FIELD APPLICATION LOG

Date: _____/_____/_____Lateral: _____ Location: _____

Site Description:_____
(describe site and estimate amount of aquatic vegetation present)

Appearance of Waterway:_____
(sheen, color, clarity)

Air Temperature: _____ Wind Speed: _____ Direction: _____

Skies: _____
(clear, overcast, high clouds, fog, rain, etc.)

Target Rate Calculation

Water Temperature: _____F Percent Mag-H increased for cold water:_____%

_____Target gal/cfs X 1 + _____ percent increase = _____ total gallons MagH/ CFS
(weed condition) *(decimal equivalent)*

_____Total gallons MagH/CFS X _____ CFS *(flow rate)* = _____ total gallons of MagH to apply

_____Total gallons MagH to apply / _____hours of application = _____ gallons MagH per hour

Actual Field Rate Calculation

Orifice Size: _____ Regulator Pressure: _____psig = _____ gal Mag-H per hour

_____ gal Mag-H per hour X _____hours = _____total gallons Mag-H to apply

_____ total gallons Mag-H to apply
_____ = _____ gallons Mag-H per CFS

Flow in CFS_____

Concentration in PPM calculation

_____gallons MagH CFS X 1884
_____ = _____ ppm ***(not to exceed 15 ppm)***

application time in minutes_____

Treatment monitoring

At no time shall the concentration of 15 ppm be exceeded. If any changes occur during the application process that will increase the MagH concentration close to the 15 ppm range stop the application. If the application is to be resumed, recalculate and adjust rate as necessary. Treat as two separate applications, using a new application log. Keep Water Distribution informed so that hold times remain correct.

Check flow every hour.

Start _____ 1st Hr._____ 2nd Hr._____ 3rd Hr._____ 4th Hr._____ 5th Hr._____

Check Nitrogen pressure every hour.

Start _____ 1st Hr. _____ 2nd Hr. _____ 3rd Hr. _____ 4th Hr. _____ 5th Hr._____

Treatment Monitoring Results

Parameters were *unchanged* during application process. ❒

Parameters were *different* than pre application calculations *and*:

Application ended early, all data is on this form *or*: ❒

Application stopped and restarted, separate application log used. ❒

Application Time

Application *stop* time: _____ Application *start* time: _____ Total time:_____ (minutes)

Estimated Gallons of Magnacide H Remaining in Tank Number _____

Pre App Volume:_____ - Volume Applied: _____ = Total Gallons of Mag-H remaining:_____

Estimated Hold Time Until Release

Hours after end of furthest upstream application (as listed on chart.) _____

Plus

Date and time of the end of furthest upstream application. + _____
Date Hour

Equals

Estimated hold time = _____
Date Hour

Dye Application

Location: _____ Canal Flow Rate: _____

Time: _____ Dye Applied (mL): _____

Sonde Deployment

Location: _____ Sonde ID#: _____

Location: _____ Sonde ID#: _____

Confirm with Water Distribution Operator:

Name:_____ Date:____/____/____ Time:_____

Comments_____

_____

_____

Name of Applicator *(Print)*: _____

I hereby certify that the above Magnacide H application was performed in accordance with the Turlock Irrigation District's Aquatic Pesticide Application Plan

Signature of Applicator *(Sign)*:

Revised 4/2/09

CASCADE/TETON FIELD APPLICATION LOG

Date: _____/_____/_____ Lateral: _____ Location: _____

Site Description: _____
(describe site and estimate amount of aquatic vegetation present)

Appearance of Waterway: _____
(sheen, color, clarity)

Air Temperature: _____ Wind Speed: _____ Direction: _____

Skies: _____
(clear, overcast, high clouds, fog, rain, etc.)

TARGET AND ACTUAL RATE CALCULATIONS

Note: The concentration of Endothall from either Cascade, Teton or the combination of the two, may not exceed 5 ppm.

CASCADE:

(_____ X _____ X _____) = _____ X **0.052947** = _____
Canal Flow (cfs) Treatment Length (hrs.) Rate (ppm) Gallons of Cascade

_____ / _____ = _____ X **63.08** = _____
Gallons of Cascade Treatment Length (hrs.) Gallons of Cascade per hour Target mL per minute

Actual Field Rate Calculation (Concentration of Endothall from Cascade)

_____ X **0.2994** = _____ / _____ = _____
Actual Pump mL per minute Flow (cfs) ppm (*Endothall from Cascade*)

TETON:

(_____ X _____ X _____)= _____ X **0.11198** = _____
Canal Flow (CFS) Treatment Length (hrs.) Rate (ppm) Gallons of Teton

_____ / _____ = _____ X **63.08** = _____
Gallons of Teton Treatment Length (hrs.) Gallons of Teton per hour Target mL per minute

Actual Field Rate Calculation (Concentration of Endothall from Teton)

_____ X **0.14155** = _____ / _____ = _____
Actual Pump mL per minute Flow (cfs) ppm (*Endothall from Teton*)

Cascade and Teton used in combination. _____ + _____ = _____
Cascade (ppm) Teton (ppm) Total ppm (*Total Endothall*)*

* ***<u>At no time</u> shall the Endothall concentration of 5 ppm be exceeded by either chemical or the combination of the two.***

TREATMENT MONITORING

If any changes occur during the application process that will increase the concentration above 5 ppm stop the application. If the application is to be resumed, recalculate and adjust rate as necessary. Keep Water Distribution informed so that hold times remain correct. Document actions taken in comments section.

Check and record flow in CFS every hour.

Start	Hour 1	Hour 2	Hour 3	Hour 4	Hour 5	Hour 6	Hour 7	Hour 8

Hour 9	Hour 10	Hour 11	Hour 12	Hour 13	Hour 14	Hour 15	Hour 16	Hour 17
Hour 18	Hour 19	Hour 20	Hour 21	Hour 22	Hour 23	Hour 24	Hour 25	Hour 26

Treatment Monitoring Results

Parameters were *unchanged* during application process. ❒

Parameters were *different* than pre application calculations *and*:

A description of the adjustments made is detailed in the comments section below. ❒

APPLICATION TIME

Application *stop* time: _____ Application *start* time: _____ Total time: _____ (minutes)

ESTIMATED HOLD TIME UNTIL RELEASE

Hours after end of application (as listed on chart.) _____

Plus

Date and time of the end of application. + _____

Date Hour

Equals

Estimated time for pesticide to clear = _____

Date Hour

DYE APPLICATION

Pre Application:

Location: _____ Canal Flow Rate: _____

Time: _____ Dye Applied (mL): _____

Post Application:

Location: _____ Canal Flow Rate: _____

Time: _____ Dye Applied (mL): _____

SONDE DEPLOYMENT

Location: _____ Sonde ID#: _____

Location: _____ Sonde ID#: _____

Confirm with Water Distribution Operator:

Name: _____ Date: ___/___/___ Time: _____

COMMENTS

_____

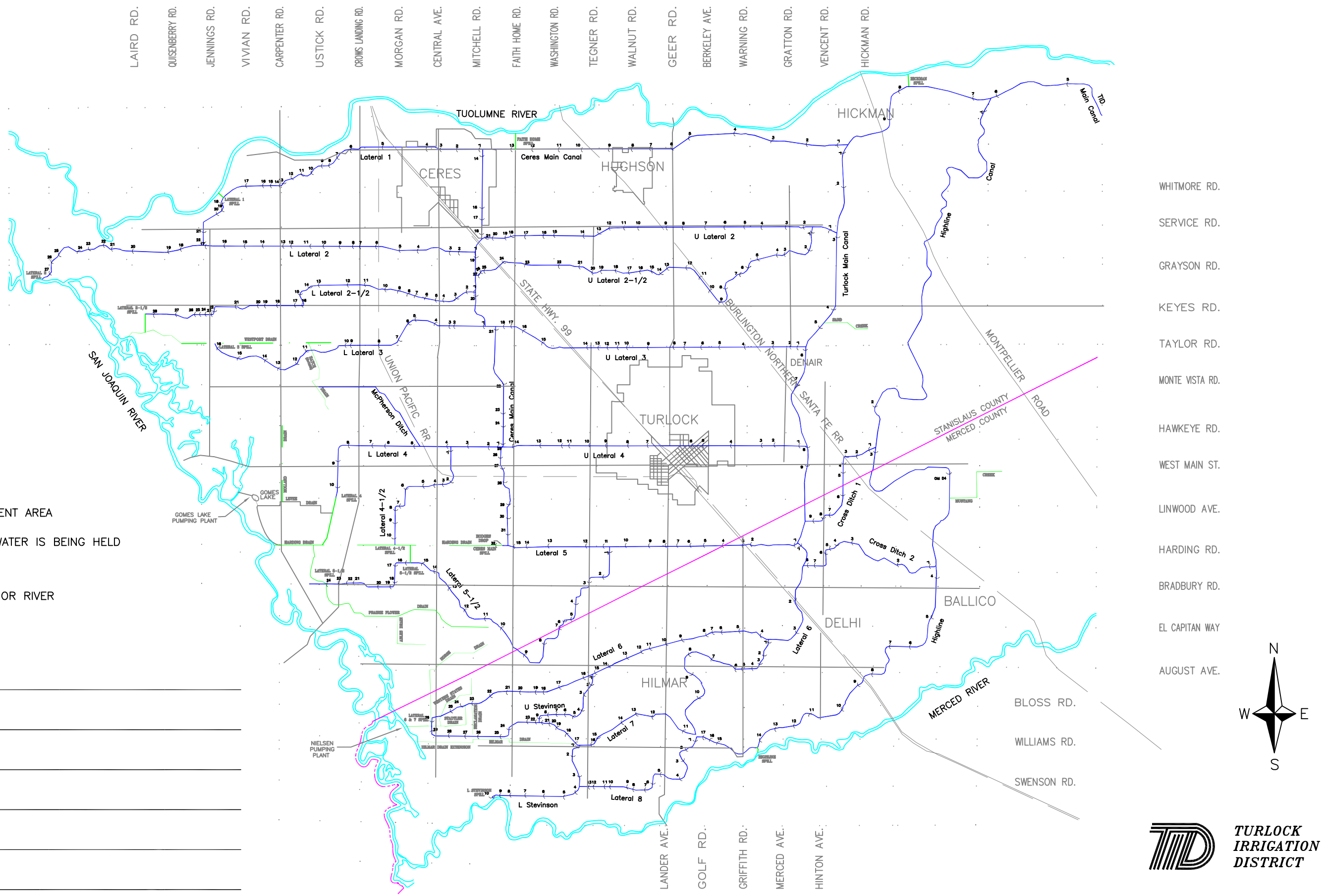
_____

_____

I hereby certify that the above application was performed in accordance with the Turlock Irrigation District's Aquatic Pesticide Application Plan

_____

Name of Applicator *(Print)* **Signature of Applicator *(Sign)***



LEGEND

- APPLICATION/TREATMENT AREA
- LOCATION TREATED WATER IS BEING HELD
- INJECTION POINT
- SPILLWAY TO DRAIN OR RIVER

CANAL TREATED: _____

INJECTION POINTS: _____

_____

_____

APPLICATOR: _____

DATE: _____

TURLOCK IRRIGATION DISTRICT

Supplemental form: Two tanks used for the same application.

Date:_____/_____/_____ Time_____ Location_____

Gallons of Magnacide H Used in Tank Number_____

Pre App: _____ *minus* Post App: _____ = Total Gallons of Mag-H used: _____

Gallons of Magnacide H Used in Tank Number_____

Pre App: _____ *minus* Post App: _____ = Total Gallons of Mag-H used: _____

Total Gallons Magnacide H Used

Tank Number 1 _____

plus

Tank Number 2 _____

equals _____

Total gallons Mag H

_____

Signature of Applicator *Date*

4/20/05

Roundup Custom (glyphosate) and Clearcast (imazamox) Field Application Log			
Applicator Name:		Date:	
Location:		County:	
Application Area:		Truck #:	Wind speed:
Water Present? No / Isolated / Ponded / Flowing			Wind direction:
Remarks:			
Material	Rate Per Acre	Amount	
Round-up Custom			
Clearcast			
Pro-spreader			
Total Material Used:			
Total Water Used:			
Items Sprayed:			
Acres Sprayed:			
Signature:			
Note Max label rate for Roundup Custom aquatic applications is 120 oz/acre			
Max lable rate for Clearcast is 128 oz/acre			

TID Water Distribution Aquatic Pesticide Field Worksheet

Application Date: _____ Canal: _____ WDO: _____ SA: _____

CANAL PREPARATION PRIOR TO APPLICATION

Chemical to be applied *(circle)*: Magnacide H / Cascade / Teton

Arrangement made for irrigating out or holding treated water. Yes: ☐ No: ☐

Pumps set to be turned on/off as necessary. Yes: ☐ No: ☐

Scheduled length of application ____ and estimated hold time ____ agreed upon with F&PC. Yes: ☐ No: ☐

HOLDING INFORMATION

Category	Location	Leaks	Checked Date/Time	Begin Hold Time From Chart	Flow Stopped Below Location (Date/Time)
Holding Drop		Yes / No			
Spill		Yes / No			
Other Location (Second Spill, Canal Split, etc.)		Yes / No			

If structure is leaking, contact F&PC and postpone application until repair is made.

Location of dye plume when flow was stopped below holding drop or spill:_____

PESTICIDE APPLICATION INFORMATION

Location	Start Time	Stop Time	Flow (CFS)	Dye Application Time	
				First	Second*

ESTIMATED HOLD TIME UNTIL RELEASE

Hours after end of furthest upstream application (as listed on chart.) _____

Date and time of the end of furthest upstream application. + _____
Date Hour

Estimated hold time until clear = _____
Date Hour

COORDINATION

Information for this application (including application details, holding drop, canal flow, sonde locations, etc.) was discussed with the following F&PC staff member:

Name: _____ Date:_____ Time:_____

DYE PLUME *(readings from monitoring equipment)*

Sonde Location	Unit Number	Dye Plume Start		Estimated Plume End	
		Date/Time	Concentration	Date/Time	Concentration

Note: Dye plume should last a minimum of 30 minutes with a steady rise & fall

Cleared:_____ Name: _____
Date/Time

* The canal will be considered "clear" of the chemical after the **last** dye plume has been irrigated out of the canal completely.

DYE OBSERVATIONS

Location	Date/Time	Notes

ADDITIONAL DYE ADDED

Location	Date/Time	Dye Applied (mL)	Name	Reason

Comments: _____

WDO Signature: _____ Manager's initials: _____

TELEMETRY INFORMATION *(Manager)*

Spill Location	Flow Stopped (Date/Time)	Flow Resumed (Date/Time)

Appendix D

SPECIAL STATUS SPECIES SENSITIVITY TRAINING DOCUMENTATION

The documentation provided in this section will be updated each year as training is completed prior to applying pesticides. Copies of the special status species sensitivity training materials as well as the attendance records are maintained on file by TID and are available by request.

Training Workshop

Aquatic Pesticide Special Status Species Protection

Overview

- Environmental Laws
- Special Status Species
- Responsibilities

Why Protect Special Status Species?

The answer is…

- It’s the Law!
- CEQA Requirements
- Compliance with District Policy

Laws that Protect Special Status Species:

- Federal and State Endangered Species Acts
  - Regulate “Take” of Listed Species
- CEQA
  - Mitigation Measures for Potentially Significant Impacts
- Federal Clean Water Act
  - Regulates discharges of pollutants into Waters of the U.S.

National Pollutant Discharge Elimination System (NPDES) Permit

- Protect Beneficial Uses of Receiving Water
  - aquatic wildlife habitat
  - recreation and drinking water

Endangered Species Acts

Federal Endangered Species Act:

- Prohibits unauthorized “take” of listed species by:
  - Protection of individual species – species listed as endangered, threatened, or proposed
  - Protection of habitat - critical habitat designations
- Directs recovery of these species
- Administered by the U.S. Fish and Wildlife Service & NOAA Fisheries

California Endangered Species Act:

- Species designated by California Fish and Game Commission
- Administered by the California Department of Fish and Game

“Take”

<u>Legal Definition:</u>

“ *to harass, harm, kill or injure a listed species. Take includes modifying habitat to an extent that disrupts breeding, feeding, and sheltering*”

PLEASE DO NOT
ANNOY, TORMENT, PESTER, PLAGUE, MOLEST, WORRY, BADGER, HARRY, HARASS, HECKLE, PERSECUTE, IRK, BULLYRAG, VEX, DISQUIET, GRATE, BESET, BOTHER, TEASE, NETTLE, TANTALIZE, OR RUFFLE THE ANIMALS

Aquatic Pesticides - Potential Effects

- Direct Effects
  - Toxicity
- Indirect Effects
  - Decaying Vegetation Consumes Dissolved Oxygen
  - May Alter pH and Change Dissolved Metals Concentrations
  - Liberation of Nutrients -- Nitrogen and Phosphorous

Application of aquatic pesticides could adversely affect special-status species if these species are present in conveyance facilities where and when the treatments are applied…

- Tricolor blackbird;
- Kern brook lamprey;
- San Joaquin roach;
- Hardhead;
- Western pond turtle;
- Giant garter snake;
- Sanford's arrowhead;
- Slender-leaved pondweed.

Special Status Wildlife

Giant Garter Snake – known from San Joaquin River floodplain in Merced County

Expected Similar Species

Valley Garter Snake

Special Status Wildlife

Western Pond Turtle

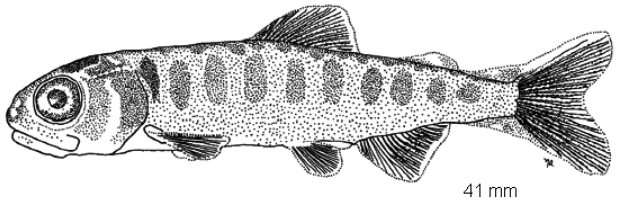
Only native turtle to this area

Introduced Species of Turtle

Red-eared Slider

Special Status Wildlife

Chinook Salmon



San Joaquin Roach

Special Status Wildlife

Kern Brook Lamprey

Hardhead

Special Status Wildlife

Tricolor Blackbird

Similar Species

Red-winged Blackbird

Special Status Plants

Sanford’s Arrowhead

Special Status Plants

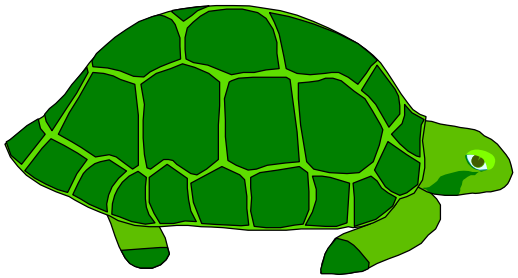
Slender-Leaved Pondweed

Special Status Species Compliance Measures

- Review the treatment area prior to applying aquatic pesticides
- Coordinate with water distribution operator and confirm gate or control structure closure time prior to application
- Don’t discharge water containing pesticide
- Follow approved application methods
- Reduce vehicle speed along margins of canals or waterways
- Do not feed or disturb wildlife
- Use approved access routes
- Clean up and report all hazardous material spills

Summary

- Protect Special Status Species and the Habitats They Utilize
  - Prevent the discharge of water containing pesticide residues
  - Follow BMPs with EVERY application
  - Report all dead or injured wildlife to appropriate state and federal agencies



Questions?

Appendix E

WATER QUALITY MONITORING FORM

Aquatic Pesticide Monitoring

Product Applied	Application Location	Application Date/Time

Monitoring Event:	Background \ Event \ Post-Event	**Monitoring Location:**	
Arrival Date/Time:		**Sampling Crew Names:**	
Departure Time:		**Wind Direction/Speed:**	
Air Temperature:		**Picture Taken of Site**	Yes \ No

Water Clarity	Clear (see bottom), Cloudy (>4" vis), Murky (<4" vis)	**Sky Code**	Clear, Partly Cloudy, Overcast, Fog, Hazy
Water Color	Clear, Brown, Green, Grey	**Precipitation**	None, Foggy, Drizzle, Rain
Water Odor	None, Sulfides, Sewage, Petroleum, Manure, Other	**Precipitation (last 24 hrs)**	Unknown, <1", >1", None
Canal Lined	Fully lined, Unlined, Partially Lined	**Water Depth**	<6", 6"-1', 1'-2', 2'-3', 3'-4', >4'

	Water Temp (°C)	Specific Conductance (uS/cm2)	Dissolved Oxygen (mg/L)	pH (Standard Units)	Turbidity (NTU)	Flow (CFS)
Subsurface						
Instrument	YSI	YSI	YSI	YSI	Hach	
Calibration Date	N/A					

Analyte \ Bottle \ Preservative:
Acrolein\40mL VOA\HCL , Endothall\250mL AG\None, Glyphosate\500 mL AG\None, Imazamox\2-40mL VOA\None

Sample Name			Equipment Blank	Trip Blank	**Total Number of Samples**
Collection Time				N/A	
Number of Samples					

Comments: _____